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SENIOR PHYSICIAN TO ST. BARTHOLOMEW'S HOSPITAL

MR. VICE-CHANCELLOR, YOUR EXCELLENCY, LADIES, AND GENTLEMEN,—On behalf of my friend and colleague, Sir Thomas Dunhill, and myself, I desire to thank you, Mr. Vice-Chancellor, and the Council of the University of Adelaide, for the signal honour which you have this day conferred upon us.

That attractive diffidence which is so characteristic of Sir Thomas Dunhill would lead him to demur if for a moment I segregate him from myself and say, quite boldly, that in his case I realise how fitting this honour is. A son of Australia, he has for the past 15 years not only given the homeland the fruits of his genius, but he has shown us all of what stuff his motherland is capable. In the unlikely event of anyone in Australia being in a state of doubt on the point, I would like to say here that my colleague has taken his place in the very first rank of British surgeons and has, as we all know, received the recognition due to him from the highest in the land.

In my own case the position is very different. I am a stranger amongst you. You in Australia have already showered your well-known hospitality upon me, as upon the rest of us who have visited you during the past two weeks, with embarrassing profusion. Such a cordial welcome as you have given us, and such kindness as you have shown, have more than rewarded us for our adventure and for any contributions we have made to the deliberations of the B.M.A. meeting in the Commonwealth. And now you put me still further in your debt by making me an honorary member of your University and inviting me to speak to you. I can only say "thank you" very sincerely and assure you that I shall always value this honour as long as life lasts.

In your generously extravagant references to myself, Mr. Vice-Chancellor, you have mentioned my interest in medical education. "I speak as a fool," but I dare not tell you for how many years I have participated in the making of doctors—first by teaching physiology in what we term the pre-clinical part of the curriculum, then in demonstrating bacteriology, pathology, and morbid anatomy, and for the past 25 years teaching clinical medicine. When I remember that at St. Bartholomew's Hospital Medical College over a hundred men qualify for practice every year, and that nearly 1000 students are scattered over the six years of their training at any moment, the recollection rather appals me. That I have had a hand in teaching about 3000 doctors at some time or other in their course of training brings a feeling of great responsibility and some humility. I may perhaps be forgiven for referring to this matter, since I am anxious that you should know that I do not speak without some experience.

THE CURRICULUM

The logic of the matter would naturally suggest that I refer, in the first place, to the curriculum itself. And on that I hold strong and definite views. But I do not think this is the place in which to air them. I am more concerned to-day with your own conditions and the things I have seen here. Moreover, this matter of the curriculum is more or less standardised all over the British Empire. This is necessitated by the desirability of accepting diplomas as being of equivalent value in whatever part of the Empire obtained—a great advantage. All the same, you can make your views and your influence felt. That the curriculum is badly in need of revision I have personally no doubt whatever, and it is good to know that this revision is being undertaken. A number of subjects demand attention—genetics or the science of heredity, psychology, and dietetics, to name three important ones that occur to me. But the curriculum is already over full, say some. Agreed, then we ought to take out parts of those subjects that are, relatively to these and others I might mention, unimportant. If the pre-clinical studies in particular are more closely adapted to the special requirements of the budding doctor, invaluable time may be saved. That the clinician should spend many hours teaching the student in the wards and in the out-patient room, facts which really belong to physiology and anatomy and chemistry, is heartbreaking. And it is equally heartbreaking to find, towards the end of his curriculum, that there is no time to teach him the subjects to which I have referred. I regard this matter as so vital that I think nothing has given me greater satisfaction, Mr. Vice-Chancellor, than to hear from you that in Adelaide University the scientific subjects are taught to those students who are intending to become doctors, with due recognition of this fact, so that a maximum concentration is made upon the ultimate purpose of their career from the very first.

You are fortunate in Adelaide, as elsewhere in the Commonwealth, in that the only avenue of entry into the medical profession is through the University. You are aware, Mr. Vice-Chancellor, of the difficulties and complications in this matter at home, where a large percentage of our doctors take an extra-university diploma. Now this latter procedure has at least one saving benefit: it keeps the student in very close touch with his hospital. And that is essential. The teaching of medicine differs fundamentally from the teaching of any other profession in this—that its success is entirely dependent upon close contact between the student and clinical material, that is, the patient. It was a dictum of the great French clinician, Trousseau, "les malades, tonjours les malades," a dictum which might well be written up in large letters over the entrance to a medical school. That is another reason why the pre-clinical studies should not be too long drawn out. They are necessary, vitally necessary; but the sooner the embryo doctor comes in contact with the patient, and *keeps* this contact, the better for both of them. Of course the young doctor should have made contact with his fellows long before this, and should have trained himself to observe. The power of observation and an intense interest in human beings are much better indications that a boy will make a good doctor than finding him dissecting a fly or ill-treating a frog, which are the more traditional signs that he was destined for the career of medicine. As I say, this close fusion of the academic with the clinical aspects of his work is paramount for the medical student. Your facilities for this in Adelaide seem

to me to be quite exceptional. Quite apart from your æsthetic advantages, and the amenities of quiet, air, and light, the geographical features are ideal. The proximity of the university to the hospital is such that the liaison can be of the closest. A stone's throw separates the class-room and the lecture theatre from the wards, the out-patient rooms, and the special departments. In passing, I should like to congratulate the hospital authorities upon the magnificent lay-out of the buildings and their perfect adaptability to hospital needs. The wards combine the best hygienic conditions with that touch of homeliness which is so important a factor in the patient's recovery.

THE PLACE OF RESEARCH

If I miss anything in all this paradise of hospital service and university culture—and it is a product of that experience of which I spoke when I began that it gives one the power of detecting the weakness as well as the strength of any system of medical education—if I miss anything, it is in the field of research. But as soon as I inquire about this I am made aware of efforts already under way towards repairing this breach in what is otherwise such an attractive and efficient edifice. I understand there is a scheme afoot by which all this valuable clinical and pathological material shall be utilised, not only for the direct teaching of medicine, but for the furthering of medical science and medical treatment.

Quite apart from the enormous value of such a scheme in this direction, its value in raising the prestige of the university and of the hospital still higher, and its moral effect upon the student at every step in his career, will be incalculable. Such an "Institute of Medical Science" would knit together the present hospital service, the clinico-pathological investigations, and the post-mortem findings as nothing else could do. I spoke of the moral effect upon the student. May I, with all deference, speak of the moral effect of such an institute upon the teachers? That, too, would be incalculable. I do not know what departments are so far envisaged in the new block which, I assume, such a conception would make necessary. But I imagine they would include one in which the clinico-pathological investigations are analysed and correlated; another in which the invaluable post-mortem materials are studied in greater detail than can be done in the post-mortem room itself; still another which is devoted to public health affairs; and a series of small laboratories for researches undertaken by the staff, and by senior students. The present museum would probably be transferred to one floor of the building. I have no doubt that all sections at present controlling and administering the hospital and the medical school will work enthusiastically towards this project, so essential to the professors, the students, the doctors, and the public. How truly have you said, Sir, "the function of a medical school is not only to spread knowledge, but to make it."

ESSENTIALS IN EQUIPMENT

I am speaking to-day on a memorable occasion in the history of the Medical School of the University of Adelaide. This year the school celebrates its jubilee. Fifty years may seem a short time, but we must not forget that medical teaching, of any systematised sort, has only existed anywhere in the world for about twice that period. And whatever we may think about the Art of medicine, the past 50 years comprise practically the whole of the Science of present-day medicine. You think you are young, but much of what was taught to the medical student 50 years ago is already outworn, if not positively dangerous. If anyone in Adelaide, concerning himself with the teaching or with the learning of medicine, thinks he lacks advantages which we at home enjoy, let him get rid of that particular thought as soon as possible. For what are the essentials in the equipment of the good doctor? There are the traditions of our profession to begin with. The imperishable nature of these, and their enormous influence upon the medical man—and therefore their great value to his patients—cannot be exaggerated. But these traditions are shared equally by young medical schools and old. They date back at least 2000 years. Next comes the calibre of the young doctor himself. I have had many Australians amongst my students, and I am quite sure that in brains, and in personality, they take a place second to none. Do I see the best of them perhaps? If I do, then so much the better for me. I think it is a pity that more of them do not come back to the land of their birth and of their early training—a land to be proud of and to work for. Not that we do not like them to remain with us: personally, to use a vulgarism, I "fall for them" every time, as I do for Irishmen and for sailors. But ought we to keep these men and these women? My conscience is a little disturbed about them, because I am not clear that we deserve the best that you produce. Moreover, if a country creams off even a portion of its best men and women, and loses them, and loses their offspring, though this may be a great gain to others, it must inevitably be a loss to the land that bred them.

Next comes the personnel of the teachers. I can concede nothing on this point. Great names have emerged from Adelaide. You, Sir, have already mentioned some of these: Bragg, Rennie, Stirling, Robertson, Watson, and Virco, concerning whom you, Sir, have spoken so eloquently (and who I had formerly thought had no vice until you told us that he never took a holiday. It is good and encouraging to know that Joseph Virco was no better than the rest of us)—to say nothing of those stalwarts who are still with you, and concerning whom it were invidious to speak. Then again, Adelaide has made large contributions to the teaching staffs of other schools in the Commonwealth. Lastly, the materials for teaching. I have already dealt with these. There is more than a quarter of a million people to feed the hospital and 500 beds to cope with this population, so that the fear at present is a wastage of clinical material rather than a paucity of it. It is my bent to look for what, to use another vulgarism, are termed "snags." I can see none. Unless it be this Institute of Medical Science within your walls, the contemplation of which has now led to the beginning of practical measures, and whose establishment would be a fine tribute to the work which the school has done in the past 50 years.

On behalf of my colleague and myself I offer the Medical School of Adelaide our warm congratulations upon the attainment of its jubilee. With traditions that it shares with all of us, with ideals which are no less high than those that imbue Australians in general, with unexcelled advantages, both academic and practical, it can surely not fail to achieve that success in the future which we so ardently desire for it.

ACUTE PANCREATITIS IN CHILDHOOD

REPORT OF A CASE

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ACUTE pancreatitis of severe degree is rare in childhood. Mild attacks of what is presumed to be pancreatitis occasionally develop as a complication of some of the acute specific fevers, notably mumps. Farnham [1] collected 119 cases of mumps pancreatitis all but 2 of which recovered without operation. Of these 2, one was operated upon and later made a complete recovery, and the other, originally reported by Lemoine and Le Passet,[2] came to autopsy. In both of them typical acute pancreatitis was found.

Apart from mumps the condition is extremely rare in children, and it may be useful to give an account of a case recently under the care of Dr. Leonard Findlay, at the Princess Elizabeth of York Hospital, with a summary of 14 others I have found on record in which the patient was under fourteen.

CASE RECORD

The patient, a girl 12½ years old, was admitted on June 11th, 1934, suffering from headache and vomiting. The birth and development had been normal, and the clinical history had been uneventful until this year. She had contracted measles, diphtheria, and (be it noted) mumps by the age of 6, and had had two attacks of erythema nodosum [sic], one at 9 years and one in April, 1934. Her subsequent history both before admission and during the first few weeks in hospital, though of great interest in a different connexion, scarcely needs detailed reporting.

The story was that late in April, soon after the second attack of so-called erythema nodosum, the patient had fallen ill with left-sided earache and aural discharge, which some ten days later was followed by mastoid tenderness. She was transferred to the local hospital where the discharge and tenderness subsided. On May 21st, however, she had fever, headache, and nuchal rigidity, and a lumbar puncture was performed. The fluid was sterile but contained 400 cells per c.mm., of which 70 per cent. were polymorphonuclear. The condition once again subsided, but early in June headache, vomiting, and nuchal rigidity returned; the patient became drowsy, in which state she remained until her admittance to this hospital on June 11th, 1934.

On admission to the Princess Elizabeth of York Hospital the patient had a subnormal temperature, a slow pulse-rate, a slight right-sided facial paresis, and a nominal aphasia, which made it clear that she had a left-sided temporo-sphenoidal abscess. On June 15th the abscess was needled through a half-inch trephine hole by Mr. Charles Keogh, and 30 c.cm. of thick yellow pus was withdrawn from which *Streptococcus pyogenes* was grown. The patient after a few stormy days appeared to make an uneventful recovery. It may be noted that at no time whilst in this hospital did she have any aural symptoms, and that the ear appeared normal on inspection, as did the mastoid region on physical and radiological examination, and that no operation was undertaken beyond the trephine hole three inches above and two inches behind the root of the zygoma.

The patient appeared to be doing excellently when, on June 27th, the twelfth day after drainage of her cerebral abscess, she was taken suddenly ill at 3 A.M. with severe abdominal pain and repeated vomiting. When first examined during the morning round, the patient pointed to the epigastrium as the site of her pain, but the abdomen was lax and no physical signs could be elicited beyond tenderness on deep palpation in the epigastrium and those of a general nature—i.e., she was shocked, had a temperature of 97° F., and a pulse-rate between 90 and 100. It then transpired, only from the assertion of the child aged 9 years in the next bed, that the day before the patient had attempted to get out of bed when no nurse was looking and had fallen face downwards across the side of the bed. She had thereupon got into bed laughing but admitted that she had hurt her "tummy" slightly. The significance of these symptoms not at first being realised, it was thought that the return of vomiting indicated a relapse of the cerebral condition. The abdominal pain remained on this basis unexplained.

The abdominal pain and repeated vomiting continued throughout that day and the next, and on June 29th, two days after the onset, the condition of the patient was much the same but the rectal temperature had risen to between 99° and 101° F., the pulse-rate to 120–130, and a slight but definite rigidity mainly of the right rectus made its appearance for the first time. A blood count showed a leucocytosis of 42,000, of which 92 per cent. were polymorphonuclear, and the urine contained no albumin, pus, or sugar. A diastatic index was not performed. A provisional diagnosis of acute appendicitis was made, though it was realised that this was unsatisfactory.

An exploratory laparotomy was determined upon and carried out by Mr. H. W. S. Wright. The abdomen was opened through a right paramedian incision. On opening the peritoneum a large quantity of slightly blood-stained fluid escaped; the great omentum was engorged and œdematous and thickly studded with areas of fat necrosis; the duodenum and under-surface of the liver appeared normal; the pancreas was very hard and moderately enlarged; the gastrocolic omentum over the pancreas was engorged and also studded with fat necrosis; the gall-bladder and bile-ducts were palpated and appeared to be normal but were not explored. The condition was diagnosed as acute pancreatitis, and a drainage-tube packed round with gauze was put down to the surface of but not into the pancreas; a second tube was inserted beneath the liver and the abdomen was closed.

A specimen of urine collected immediately after operation showed a diastatic index of 512 units, compared with 16 units of a control patient's urine.

The patient made a rapid recovery. There was some vomiting for the first 24 hours and the skin round the wound became sore and slightly septic for a week. The packing was removed on the 12th day and the tube on the 14th day. By the 26th day the wound was healed and the child again well. She was sent to a convalescent home, and on Sept. 11th, just three months after admission, she was well and lively with normal ear-drums, a healed trephine wound, and healed abdominal wound; and by Nov. 6th the diastatic index had returned to normal.

The results of the urinary diastatic estimations show the gradual return to normal during the course of 18 weeks:—

Date in 1934.	Patient.	Control.
June 29	512 units.	16 units.
July 2	128 ,,	16 ,,
,, 9	64 ,,	16 ,,
,, 23	64 ,,	16 ,,
Sept. 11	32 ,,	16 ,,
Nov. 6	16 ,,	16 ,,

This history has several features of interest. It may be noticed in passing that there is an alleged second attack of erythema nodosum. This, though it has been reported, is not common, and reliable cases are rare. It is significant that the Mantoux reaction to 1/1000 tuberculin was negative on admission.

The patient contracted acute pancreatitis whilst under observation in hospital, two weeks after a large collection of pus had been removed from a quite remote part of the body. At the time it seemed possible, even probable, that there was a relationship between these two events, and the literature of the subject was examined to ascertain, first, the frequency of acute pancreatitis in children, and,

secondly, whether remote sepsis is commonly an ætiological factor.

FOURTEEN RECORDED CASES

The cases discovered may be summarised as follows :—

CASE 1 (Herzog [3]).—Child of 2 years, previously healthy. Sudden onset of pain followed by repeated vomiting. The pain subsided in a few hours, but vomiting was repeated and patient's condition gradually worsened and he died suddenly 22 hours after onset of first symptoms. Post mortem a six-centimetre round-worm was found mixed with vomit in the hair near right ear. Peritoneal cavity blood-stained but no free fluid; many areas of fat necrosis in mesentery and colon; pancreas dark red with many hæmorrhagic areas throughout its substance. Cause: ? due to round-worm.

CASE 2 (Gallie and Brown [4]).—Boy, aged 2½. Sudden abdominal pain, doubling up, pallor, and repeated vomiting for nine hours when pain ceased. Obstreperous child, did not appear ill. Under anæsthesia, firm fixed abdominal tumour felt in epigastrium. Operation 48 hours after onset: blood-stained fluid in peritoneal cavity; tumour found to be very firm swollen pancreas; pancreas and omentum covered with areas of fat necrosis; gall-bladder distended but emptiable; biliary tract normal; abdomen closed without drainage. Uninterrupted recovery. Vomited round-worm 15 hours after operation. Cause: ? due to round-worm.

CASE 3 (Holzman [5]).—Boy, aged 3. Sudden abdominal pain; passed blood per rectum; vomited. Seen 24 hours later he was much shocked; abdomen full, tender, resistant in epigastrium. Operation: blood-stained fluid in peritoneal cavity; nil else abnormal, except very red in pancreatic region. Patient died. Post mortem: fat necrosis all over peritoneum, mesentery, and pancreatic region; pancreas swollen and red, cross-section showed many hæmorrhagic areas; biliary tract normal. Cause: none found.

CASE 4 (Mackenzie [6]).—Girl, aged 3 (congenital idiot). No history of mumps. Patient suddenly collapsed and died. She had had follicular tonsillitis two weeks previously, since when she had been of a poor colour and had had occasional attacks of vomiting with abdominal discomfort. Post mortem: fat necrosis on mesentery and complete necrosis of pancreas. Cause: ? septic embolus in pancreas.

CASE 5 (Anderson [7]).—Girl, aged 4. Sudden onset of abdominal pain; vomited repeatedly; much shocked. On examination three hours later: abdomen distended, not rigid; vomiting repeatedly. Patient died an hour after admission to hospital. Post mortem: 200 c.cm. blood-stained fluid was found in peritoneal cavity; areas of fat necrosis on omentum and large intestine; retroperitoneal hæmorrhage over transverse colon; biliary tract normal; acute duodenitis; pancreas swollen and œdematous, section showed many hæmorrhagic areas. Cause: unknown.

CASE 6 (Désjacques [8]).—Boy, aged 5. Two hours after midday meal complained of sudden violent abdominal pain: vomited. Two days later admitted to hospital; vomiting continuously, much shocked, with distended abdomen and blue discoloration around the umbilicus. Operation: blood-stained fluid in abdominal cavity; fat necrosis on mesentery; abdomen closed. Second operation on eighth day for evacuation of more fluid. Patient died seventeen days after onset. Post mortem: head of pancreas entirely necrotic; biliary tract normal; no helminthiasis. Cause: unknown.

CASE 7 (Hagedorn [9]).—Boy, aged 7. Run over by cart; wheel crossed abdomen. Immediate severe abdominal pain and repeated vomiting. Operation twenty-four hours later: blood-stained fluid in peritoneal cavity; fat necrosis on mesentery and omentum; no visible or palpable lesion of pancreas. Abdomen closed without drainage. Healed in eight days. Urine never contained sugar. Cause: trauma.

CASE 8 (Phélip [10]).—Child, aged 7. Typhoid at 6. Sudden onset of violent abdominal pain; immediate and repeated vomiting. Four days later: pale, ill child with "peritoneal aspect"; abdominal tenderness, no rigidity; transversely placed tumour high up in the epigastrium. Operation: tumour in mesocolon covered with yellowish areas of fat necrosis. Patient died five days after onset. Post mortem: no free fluid; tumour revealed as firm swollen pancreas; biliary tract normal. Cause: unknown.

CASE 9 (Dietrich [11]).—Boy, aged 10. Fell in front of cart; wheel crossed upper abdomen; complained of great pain and vomiting, which persisted for ten days. Examination ten days after accident: very ill child in great pain; abdomen distended and everywhere tender. Operation: no free fluid in cavity; round cystic swelling, size of hen's egg, containing whitish sterile fluid, above transverse colon; pancreas covered with fat necroses. Patient very ill for three days; sugar found in urine. Eventually recovered. Cause: trauma.

CASE 10 (Foged [12]).—Girl, aged 11; previously healthy. Vague abdominal pain for last three months; sudden onset of paroxysmal abdominal pain and frequent vomiting; patient's condition became considerably worse during course of three days. No urinary symptoms or jaundice; urine clear. Abdomen distended; tenderness everywhere; soft mass felt in right iliac fossa. Operation third day after onset: blood-stained fluid in peritoneal cavity; fat necrosis on mesocolon and omentum. Patient died soon after operation. Post mortem: large retroperitoneal mass of blood; many fat necroses everywhere; pancreas enormous, infiltrated with blood; biliary tract normal; no helminthiasis. Cause: unknown.

CASE 11 (Novis [13]).—Hindu girl, aged 12. Onset of severe abdominal pain with vomiting. Condition subsided but pain returned without vomiting during the next eight days. Examination: thin girl, did not appear ill; abdomen not distended; rigid right rectus and tender swelling in epigastrium; urine normal. Observed for a week and had attacks resembling biliary colic. Operation about two weeks after onset: no free fluid; pancreas greatly enlarged; pancreas incised and two round-worms picked out from length of pancreatic duct; pancreas stitched and abdomen closed. Patient passed several round-worms after administration of santonin. Recovery uninterrupted. Cause: round-worms.

CASE 12 (Dobrowsky [14]).—Girl, aged 12. Ran heavily into a barrier; forty-eight hours later severe abdominal pain. Operation: blood-stained fluid and fat necrosis in peritoneal cavity; large hæmatoma of pancreas. Abdomen closed. Patient recovered. Cause: trauma.

CASE 13 (Vogel [15]).—Girl, aged 13. Operation undertaken for severe acute pancreatitis. Patient died. Post mortem: typical acute pancreatitis; common opening of pancreatic and common bile-ducts. Cause: unknown; ? congenital abnormality.

CASE 14 (Sebening [16]).—Girl, aged 13. Operated on for cholelithiasis. At operation a stone was found impacted in papilla of Vater; fat necrosis on pancreas. Stone removed. Patient recovered. Cause: cholelithiasis.

COMMENTARY

The *signs and symptoms*, though not pathognomonic, are at least suggestive, and occurring in an adult would, I feel confident, give rise to a suspicion that the pancreas might be at fault. In every case except two, in which no mention was made, there was a history of a sudden onset of severe abdominal pain and repeated vomiting, both lasting until operative measures or death supervened. Examination revealed shock, usually of considerable extent, with generalised abdominal tenderness and, as a rule, a significant absence of marked abdominal rigidity. In the adult attention is often drawn to two further signs which might suggest the diagnosis.

First, a cyanotic or livid hue of the face, supposed to be brought on by interference with the movement of the diaphragm; secondly, a blue discoloration of the external abdominal wall around the umbilicus, which is of course produced by an infiltration of altered blood pigments through the parietes from the blood-stained fluid within the peritoneal cavity. In no case was the former, and in only one—No. 6—was the latter sign mentioned; and in this case the question was not pursued further.

Finally, when acute pancreatitis is under consideration, three laboratory tests may be made: Loewe's eye test, Cammidge's test, and Wöhlgemuth's urinary diastase estimation; the last of which at least will establish the diagnosis beyond question. Cohnheim [17] knew of and described a starch-splitting ferment in the urine of normal subjects as long ago as 1863. In 1908 Wöhlgemuth [18] worked out a method of estimating this substance, and later he,[19] and in this country Corbett,[20] established the value of the urinary diastatic index in the diagnosis of acute pancreatitis.

Ætiology.—In 6 cases no definite cause was found. In one (No. 13) a congenital abnormality of the ducts was present, and in another (No. 5) acute duodenitis; but it seems idle with such scanty evidence to speculate upon possible ætiological factors.

Trauma accounted for 4 cases. This is a rare but well-recognised cause of acute pancreatitis. Dietrich,[11] in a long article on pancreatitis, has a section on "Pancreatitis acuta traumatica," and Leith [21] quotes 7 cases due to crushing accidents, severe blows in the epigastrium, or abdominal shot-wounds. Experimentally, the disease appears to be very difficult to produce in this way. Brocq, who discards trauma as an ætiological factor, produced bruising and even complete pulping of the pancreas with a hammer, but invariably the animal (dog) had to be killed some days later to reveal only hæmatomata of the pancreas, or, as he laconically puts it, "Tête du pancreas couleur lie de vin," with no evidence of liberation of pancreatic ferments.

Round-worms were certainly the cause in one case (No. 12), and presumably in two others (Nos. 1 and 2). Rigby [22] reports a similar case with a fatal issue in which, post mortem, a round-worm was found protruding from the papilla of Vater and lying in the duct of Santorini; and Sabrazès, Parcelier, and Bonnin [23] collected 19 cases in which *Ascaris lumbricoides* was found in the pancreatic duct. Of these, four (Rigby's, Novis's Case 11, and two others) had clinical pancreatitis, and one other had a pancreatic cyst. It is not difficult to see how the presence of a foreign body in the pancreatic duct could allow bile or duodenal contents to enter and activate trypsinogen with consequent pancreatitis.

In one case (No. 14) the disease was of the adult type, occurring together with acute cholelithiasis.

Lastly, in one case only (No. 4) was there any mention of sepsis elsewhere in the body, the patient dying suddenly a fortnight after an attack of acute follicular tonsillitis. Complete necrosis of the pancreas was found post mortem, which must have developed gradually and possibly followed an embolic abscess from the primarily infected tonsils.

It will be seen that there is little evidence either to oppose or support the contention that, in the present case, the brain abscess was primary to an embolic pancreatic abscess. The only other group the case might be placed in, besides the largest one of "cause unknown," is that of trauma. The history of injury was, however, only on the testimony of another child and was probably only slight; there were no symptoms until twelve hours later, though Dobrowsky's case (No. 12) shows that the onset is not always immediate.

Treatment and Prognosis.—Including the present case, 12 patients were operated upon, of whom 7 recovered. Three others died before operation could be undertaken. It is thus difficult to assess the value of operation, but it seems probable that an outlet for the pancreatic ferments and the blood-stained fluid which always collects will at least cut short the progress of the disease, and from this point of view the sooner operation is undertaken the better. The ultimate prognosis, if the operation is survived, is uniformly good. There appeared to be complete recovery in every case and no symptoms referable to the pancreas are mentioned after the patients had been discharged from hospital. Our own patient was quite fit in nine weeks, though it is interesting to note that the urinary diastase did not return to normal until a few weeks later.

SUMMARY

(1) A case of acute pancreatitis in a child aged 12, following upon a brain abscess, is described. The ætiology is discussed in the light of 14 other cases here summarised. (2) Acute pancreatitis in childhood is usually an accidental finding at an abdominal operation or post mortem. This is due partly to the rarity of the condition, and partly to the fact that its causes are quite different from the commonest causes of acute pancreatitis in the adult. The symptoms and signs may be sufficiently distinctive, however, to arouse suspicion of the true nature of the condition and the suspicion can be confirmed by the urinary diastase test. (3) Acute pancreatitis in childhood is very seldom ætiologically related to a diseased biliary tract. Trauma accounts for many cases and *Ascaris lumbricoides* for a few; but in the majority no cause is found. Septic emboli lodging in the pancreas may occasionally be responsible. (4) Operation should be undertaken promptly to allow of rapid removal of destructive ferments and the blood-stained fluid which is always present.

My thanks are due to Dr. Leonard Findlay for permission to report this case and for many helpful suggestions.

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IRREDUCIBLE INTUSSUSCEPTION

A REPORT OF FOUR CASES

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THE operation for the relief of acute intussusception presents a real problem when it is found that the mass cannot be reduced by the usual manipulations. The more extensive operation necessitated by irreducibility greatly increases the gravity of the prognosis, and raises the question of what procedure offers the best chance of recovery.

The most important factor in making an intussusception irreducible is delay in its relief. Vascular obstruction leads to congestion, œdema, and finally gangrene of the intussusceptum, while at the same time peritoneal adhesions are forming between the entering and returning layers.

Hence successful treatment of intussusception demands early operation; because the longer it is left, the more likely it is that the mass will be irreducible. The correct diagnosis, in a typical case, depends on the history of acute abdominal pain, vomiting, a tumour, and usually the passage of blood per rectum. The very severity of the initial symptoms materially assists the early diagnosis, and conversely if the onset is gradual or any of the main signs are absent there may be delay in making the correct diagnosis.

In this connexion it is interesting to notice how often there is apt to be delay in making a diagnosis until blood is passed per rectum. In Cases 1, 2, and 3 of this series, blood had not been passed when first seen, with the result that operation was delayed for eighteen hours in Case 1, and a diagnosis of appendicitis made in Case 3.

In the common ileocæcal intussusception of infants, the small intestine passes rapidly into the colon and may even present at the anus within a few hours. Severe symptoms and all the typical signs are frequently present within a short time of the commencement of the illness. At early operation reduction is usually easy, and the distance the intussusception has travelled does not necessarily increase the gravity of the prognosis.

Intussusception commencing in the small intestine advances less rapidly than the ileocæcal type because the entering and ensheathing layers are of much the same lumen, and the symptoms are much less severe, so that diagnosis is more difficult. The ensheathing layer forms a tight constriction at the neck of the intussusception, which makes reduction difficult. In these cases indefinite symptoms and the tight constriction at the neck of the mass both favour the production of an irreducible intussusception. As Perrin and Lindsay[1] have observed, "The type of intussusception with milder symptoms is ultimately the most fatal."

The four cases here reported were all of this last type; one had remained entirely enteric, while the other three had reached the colon by passing through the ileocæcal valve. The patients were older children, who are better able to stand abdominal operations, but the treatment suggested is applicable to cases of irreducible intussusception in infants, and probably offers a better chance of recovery than resection.

REPORT OF CASES

CASE 1.—A boy aged 7 was admitted to hospital on Jan. 6th, 1932, with a history of abdominal pain for 24 hours. Some vomiting for the last 12 hours; the bowels had not acted since the onset. When he was examined pains were said to be all over the abdomen, and there was slight tenderness in the right iliac fossa. Temperature 97° F., pulse 80. Enema produced fairly good fluid result, and no blood. After a fairly comfortable night the pain recurred and the boy vomited. A definite mass was felt in the right iliac fossa, and this region was much less tender than on admission; an enema now produced blood. At operation an ileocolic intussusception was found. The invagination had begun about 18 in. from the ileocæcal valve and had passed through it into the cæcum, taking most of the terminal piece of ileum with it. Partial reduction was effected, the mass being pushed back out of the cæcum; the remaining mass was found to be gangrenous, and so was resected and a lateral anastomosis between the divided ends of the ileum was performed. The unreduced intussusception, which consisted of about 10 in. of gangrenous small intestine, was removed, and although the apex was thought to be the site of an adenoma, histological examination showed only lymphoid hyperplasia. There was no vomiting after the operation. The bowels acted on the second day, and after a rather anxious 24 hours, recovery was uneventful.

The physical signs and symptoms shown by this case were so indefinite that the correct diagnosis was not made until 18 hours after admission, when a tumour was felt and blood passed per rectum for the first time. During the operation the reduction of the intussusception was so far successful that the mass was reduced out of the colon, thereby limiting the resection to 10 in. of ileum only. But the partial success of the reduction revealed the gangrenous condition and made a resection unavoidable.

CASE 2.—A boy of 11 was admitted to hospital on March 1st, 1933, on account of severe abdominal pains and vomiting of four days' duration. Colicky pains and vomiting had got steadily worse until admission, when he was obviously very ill and was having clonic convulsions every ten minutes. The abdomen was slightly distended and a tender mass could be felt on the right side, palpation of which started an attack of colic. The bowels had not acted since the onset of the attack, but rectal saline given before operation was returned with some blood, this being the first time that blood had been seen.

Under local anæsthesia the abdomen was opened through a right rectus incision, and an ileocolic intussusception was found extending up to the hepatic flexure. It had commenced about 24 in. from the ileocæcal valve, and black gangrenous small intestine could be seen through the thin wall of the ascending colon. The general condition of the patient excluded any question of resection, so under a general anæsthesia a short-circuit anastomosis was performed between the lower ileum and the transverse colon, the intussusception being left undisturbed. After the operation, rectal salines were well retained, there was no vomiting or convulsions, and the bowels acted four times on the third day. On the second day, a massive collapse of the lower lobe of the left lung developed.

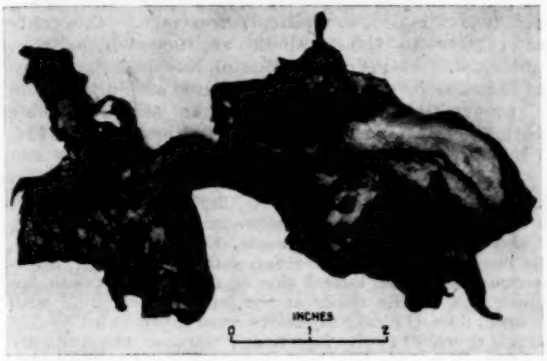
For six days there were occasional attacks of colicky pain which were partly relieved by the administration of belladonna. The intussusception was palpable as a tender mass for three weeks after the operation, when it was passed per rectum as a large slough. This was still in the form of the intussusception and represented about 15 in. of small intestine (see Figure). Convalescence continued satisfactorily from this time.

In this case complete intestinal obstruction had been present for four days, the intussusception was seen to be gangrenous, and the condition of the patient prohibited any resection operation. The operation was limited to the relief of the obstruction and the intussusception was left in situ with unexpected success. Apart from occasional attacks of colic for the first six days, and slight fever for a

fortnight, there were no untoward signs and symptoms which could be attributed to the retention of gangrenous intestine in the colon for three weeks.

CASE 3.—A girl, aged 10, had been ill for 24 hours when admitted to hospital on Sept. 25th, 1933. Vomiting and pain in the mid-abdomen and later in the right side were the main symptoms, with a temperature of 100·2° F. and a pulse-rate of 124. Abdominal examination failed to reveal any rigidity or tenderness, but a mass was felt in the right iliac fossa, and colicky pains occurred at intervals. The bowels had not acted, and on rectal examination blood was not found.

The case was thought to be one of acute appendicitis, but at operation the appendix was normal and the mass was found to be an ileocolic intussusception extending



CASE 2.—Slough passed per rectum.

up to the hepatic flexure. The cæcum and ascending colon with the contained intussusception were delivered into the wound and reduction commenced. This proved difficult, and after only a few inches had been withdrawn the released intestine was seen to be deeply congested and œdematous, with the peritoneal coat of the ensheathing layer split. It was evident that even if complete reduction was achieved, a resection of gangrenous intestine would be necessary. With the object of avoiding this, the partly reduced intestine was pushed back again to reform the intussusception in its original extent. The neck was secured with several catgut stitches to prevent any further advance of the invagination, and an ileo-transverse colostomy was performed. During the performance of the anastomosis the transverse colon was found to contain some dark blood.

After the operation the patient vomited once; the bowels acted at the end of 48 hours, and there were some slight attacks of colic which became less troublesome and ceased altogether in five days. The intussusception was palpable as a slightly tender mass in the right side of the abdomen for some time after the operation; it gradually decreased in size, and after four weeks was felt as a very ill-defined thickening in the region of the ascending colon. No recognisable sloughs were passed per rectum. Radiography of an opaque meal during convalescence indicated that the stoma in the transverse colon was acting well, and there was no passage of barium via the ileocæcal valve.

After 24 hours' illness no blood had reached the rectum, although at operation the condition of the intussusception was such that resection would have been necessary if reduction had been completed. The intussusception was reformed, and a short circuit done to relieve the intestinal obstruction.

CASE 4.—A boy, aged 2 years and 4 months, previously healthy except for a cough in the winter months, was brought to hospital on Sept. 6th, 1934, for abdominal pains and vomiting. The illness had begun five days before, and the vomiting and pains had become worse each day; blood was passed per rectum on the third day, and apart from this there had been no action of the bowels. On examination he was pale and dehydrated; there was general abdominal distension and visible peristalsis, and a mass which was quite mobile and not tender was felt to the right of the umbilicus. An enema produced a considerable quantity of blood, and the child vomited twice after admission to the ward.

At operation an enteric intussusception, 7 in. long and about 4 ft. from the ileocæcal valve, was found; there were also some free fluid and distension of the small intestine above the obstruction. The mass was œdematous and attempts at reduction were completely unsuccessful. After the neck of the intussusception had been fixed with stitches, a short circuit was performed by the anastomosis of loops of ileum above and below the obstruction. The intussusception was returned to the abdomen and the wound closed. There was no vomiting after the operation and the bowels acted after 24 hours. For two days there were occasional colicky pains, but the bowels acted freely and the abdominal distension disappeared. The abdominal mass was palpable on the right side of the abdomen for two to three weeks, and gradually became smaller; no blood or sloughs were passed in the stools. Radiography at the end of three weeks indicated that the opaque meal probably passed entirely by the anastomosis.

This was a case of enteric intussusception showing mild symptoms at the onset. The general condition became progressively worse until admission on the fifth day, when the child was in a state of advanced small intestine obstruction. Blood was passed on the third day for the first time, and although the intussusception was only 7 in. long it was quite irreducible. Operative treatment was limited to the relief of the intestinal obstruction.

CASES SIXTY YEARS AGO

Sir Jonathan Hutchinson, in 1874, described the first case of intussusception treated successfully in this country by abdominal section.[2] Appended to his article are some very interesting notes, compiled by Warren Tay, of 131 cases of intussusception of all kinds. Post-mortem examinations were carried out on many of the large number of fatal cases, and the notes of these cases bring out two points of particular interest. First, it was found that many intussusceptions, irrespective of size, were very easily reducible post mortem, there being no peritoneal adhesions. This fact acted as a direct encouragement to operative reduction during life. Secondly, cases in which gangrene of the incarcerated intestine had taken place rarely showed peritonitis as a complication; death in these cases was ascribed to "exhaustion due to pain and vomiting."

From the clinical notes of this same article it would appear that an untreated intussusception in a child usually proves fatal in four to six days, and that intestinal obstruction is the main cause of death, peritonitis only rarely complicating the condition.

TREATMENT

The alternatives in operative treatment of an irreducible intussusception are: (*a*) operations entailing resection of a part or whole of the mass, followed by an anastomosis to restore the continuity of the gut; or (*b*) operations in which an artificial anus or a short circuit is made to relieve obstruction. The first type of operation has been considered the ideal, as it fulfils the double object of removing the gangrenous intestine and relieving obstruction. Resection and anastomosis have frequently been carried out, and many successes recorded; but as Perrin and Lindsay and also Close have shown, with large series of cases, resection in children under the

age of 3 years has practically 100 per cent. mortality. Close, after discussing 17 cases in which resection was performed without a single recovery, mentions the following case: "It may be a significant fact that in one patient who survived in spite of a gangrenous intussusception, no resection was undertaken and that a spinal anæsthetic was given. A lateral anastomosis was made above and below the obstruction which was left in situ."[3]

A modified type of resection operation, which has the advantage that no anastomosis has to be made, is that suggested by Bowerman Jessett and first performed by A. E. Barker. In this operation the neck of the intussusception is stitched and the gangrenous intussusceptum is removed through an incision in the ensheathing layer. Some successes have been claimed, but technical difficulty and risk of sepsis at the time of operation, and the liability to stenosis at the neck later, make it an unreliable procedure.

Resection is the usual treatment adopted because attention has been focused on the gangrenous intussusception as a possible source of peritoneal infection or severe intestinal hæmorrhage. But it has been shown that even in fatal cases untreated by operation peritonitis is rare, as the gangrene is limited to the intussusceptum and the ensheathing layer is usually healthy. The alternative, an artificial anus, always seems to be unsatisfactory in children, especially in this condition, since the drainage from the small intestine produces rapid and usually fatal dehydration.

Lateral anastomosis relieves the obstruction and largely avoids the shock and dehydration associated with resection and ileostomy respectively. This method of treatment was first advocated by Parry[4] in 1909 when reporting a successful case in a child aged 6 months. Rutherfurd[5] in the same year published a second success with the same method, and more recently Montgomery and Mussil[6] have described two more cases of infants 7 and 8 months old.

CONCLUSIONS

(1) Intussusceptions which on laparotomy prove to be irreducible have often shown indefinite signs and symptoms before operation. (2) The lethal factor in these cases is intestinal obstruction, while peritonitis originating from the gangrenous loop is a rare complication. (3) When the element of obstruction is removed, no serious ill-effects have been observed from the retention of gangrenous intestine in the bowel for several weeks. (4) Lateral anastomosis to short-circuit the obstruction offers the best chance of recovery.

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STAFFORDSHIRE MENTAL HOSPITALS.—At a meeting of the Staffordshire Mental Hospitals board it was reported that the Cheddleton Mental Hospital visiting committee have accepted tenders amounting to approximately £60,000 for the provision of an admission hospital, convalescent villas, and additional accommodation for nurses. At Stafford and Burntwood, the other two hospitals administered by the board, there is also considerable overcrowding.

PYROTHERAPY IN DEMENTIA PRÆCOX

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TREATMENT by the injection of fever-producing substances, termed pyrotherapy or protein shock, has been tried in many conditions. The moderate success attained in neurosyphilis has led to trial of this method in other diseases of which the organic basis is still uncertain.

Dementia præcox is responsible for about 16 per cent. of all admissions and 60 per cent. of chronic cases in public mental hospitals. The hopelessness of the prognosis makes empirical treatment the only alternative to the fatalistic attitude which is so universal. At Plymouth Mental Hospital the means of inducing fever which we have used are Sulfosin and a preparation called Dmelcos. In all, 34 female patients have been treated up to the end of 1934, 7 by sulfosin and 27 by dmelcos.

Sulfosin, a suspension of sulphur in oil, has been used since 1927 by Schroeder.[1] In 1927 Minski[2] reported a series of 20 cases with 2 recoveries, 1 much improved, 1 short remission, 1 much worse, 15 showing no change. As recommended by Schroeder, sulfosin was given intramuscularly on the lateral side of the thigh between the upper and middle thirds of the femur. Beginning with a small dose (1 c.cm.) injections were given twice weekly over a course of twelve injections; the dose was gradually increased up to 10 c.cm. according to the response. Temperatures up to 104° F. were obtained. Sometimes a secondary rise occurred on the second day after the injection. No abscesses or other complications were produced. Some pain and stiffness at the site of injection were relieved by hot fomentations. This painful reaction is the chief objection to the treatment.

Mackay[3] believes that the fever is caused by the liberation of protein from necrosed muscle and so sulphurtherapy can be regarded as a form of protein shock.

Dmelcos, a stabilised atoxic vaccine of Ducrey's bacillus, is given intravenously. No local reaction has been observed even when it has been accidentally injected into the subcutaneous tissues. The vaccine is primarily intended for the treatment of soft sore and its complications. The course consists of six injections of 1, 1·5, 2, 2·5, 3, and 3 c.cm. respectively, each cubic centimetre containing 225 million organisms. Injections are given on alternate days. The rise in temperature was rapid commencing ½–1½ hours after the injection; the maximum was reached in about 4 hours; the fall to normal in 5 or 6 hours; the whole reaction lasting for 9 or 10 hours. Rigors were observed in about half the cases. The initial dose of 1 c.cm. produced a temperature of from 101° to 102° F.; afterwards rises up to 104° F. or higher were common. In 4 cases of this series a second course of six injections was given with similar results. In 12 cases the injections were given on consecutive days with no untoward results.

In addition to the usual signs of fever—such as flushed face, headache, rapid pulse, and thirst—vomiting occurred in many cases. But on each occasion the pulse-rate fell with the temperature Diet consisted mainly of fluids during the fever and aperients were given when required. Towards the end of the course the tongue was furred and the patients showed signs of exhaustion. Loss of weight was negligible and all the physical signs cleared up immediately on cessation of the injections.

In 24 cases there was an immediate response; the remaining 10 showed no appreciable change. The improvement was most marked in the katatonic type. While it lasted, violent and impulsive patients became manageable and easily nursed in an open

dormitory; mute resistive patients became talkative; even stuporous cases appeared more aware of their surroundings. Unfortunately these promising reactions persisted for only a few days in 9 cases. In 5 of the series the patient had a period of from two to three weeks in which she was more accessible, and 6 were sent to the occupational therapy department where the remission persisted for periods up to three months. These had previously been found unemployable by reason of negativism or simple apathy. Four patients were discharged as recovered.

TREATED AND UNTREATED CASES COMPARED

From 1932 to 1934, in order to assess the value of the treatment, all cases of dementia præcox admitted to the hospital were given pyrotherapy. Controls were provided by searching the hospital records for dementia præcox admissions in the period 1928–30. Most of these are still resident with all the symptoms well established; so that the original diagnoses can hardly be called in question. Care was taken to exclude all doubtful cases among the recent admissions. Thus a fair basis of comparison between the treated and the untreated was established.

The results of this investigation were as follows:—

	1932–34 Treated.		1928–30 Untreated.
Recoveries	1	....	1
Partial remissions	2	....	—
Transferred	4	....	—
Died	1	....	2
Chronic	11	....	14
Total	19	....	17

At first glance these figures may not appear to offer much recommendation for the treatment. The recovery-rate remains the same in spite of the labour involved in giving injections, the extra work thrown upon the nursing staff, and the expense borne by the hospital. No form of special therapy, however, can be considered apart from general treatment which, in dementia præcox, is mainly directed towards bringing back the patient to reality, and remoulding the personality. The chief value of pyrotherapy is that it temporarily breaks the vicious circle, and makes the schizophrenic patient more approachable and amenable to suggestion. About one-third of the cases classified as chronic are now usefully employed in handicrafts. Many have had further courses of pyrexial treatment with marked benefit. In course of time, as occupational therapy becomes more highly organised, it is hoped that many more will be saved from complete deterioration. Pyrotherapy, then, can be regarded simply as an introduction to the only rational form of treatment, which is psychotherapy disguised as intensive occupation. The simplicity of technique and absence of dangerous complications makes treatment by sulfosin and dmelcos eminently suitable for public mental hospitals.

CASE-HISTORIES

The following summaries show the course of the illness in those patients who recovered.

CASE 1.—Female, aged 27, married. Father insane and committed suicide. Previous history: born in Hong-Kong of English parents; contracted malaria in childhood; reserved by nature, but could be jolly on occasion; a good tennis player. Present illness began in May, 1931; she attempted suicide by gas poisoning and was admitted to hospital in June, 1931. On admission was extremely negativistic, refused food and resisted treatment and smeared herself with fæces; had bouts of senseless rage and meaningless laughter; stripped herself naked; said her head and body were not her own and that she was a boy not a woman; made violent attacks on staff and other patients; required seclusion; physical condition excellent. She continued in this state until April, 1932, when dmelcos was given. The highest temperatures recorded after each injection were 102·3°, 103·6°, 102·6°, 102·6°, 102·2°, and 102·6° F. She had no rigors but vomited twice. There was an immediate response to the fever; she became more talkative and conversed rationally with her husband. She was no longer faulty and destructive and could be nursed in an open dormitory; she relapsed slightly in May, 1932, when sent home on four days' leave. She continued with light handicraft occupation until discharged in March, 1933. Examined a year later, she appeared to have made a complete recovery which has been maintained up to the present.

CASE 2.—Female, aged 19, single. Mother had a nervous breakdown following childbirth. Previous history: normal childhood; became a domestic servant; was said to be devoted to her father; was a rather serious, religiously inclined young woman; had quinsy four months before her mental illness with good recovery. Present illness: onset sudden after a period of insomnia; became restless, noisy, confused, and talked incessantly; admitted to hospital as a temporary patient in November, 1931. On admission was noisy, restless, divorced from reality, manneristic, faulty, and degraded in habits; she refused food and had to be artificially fed; physical condition moderately good. She continued in this state hallucinated, destructive, resistive, and inaccessible; lost weight rapidly. In April, 1932, dmelcos was given; highest temperatures recorded were 102·6°, 103·6°, 103·4°, 102·4°, 102·4°, and 102·4° F. There was no immediate improvement except that she became more docile and easily nursed. In the next three months she rapidly put on weight. She gradually made a partial readjustment under continued directed occupational therapy. Discharged in August, 1932, rather fatuous but with some insight. Recovery completed at home where she has remained well up to the present.

CASE 3.—Female, aged 21. Family history, negative. Previous history: rather a spoilt child brought up in religious atmosphere; admitted masturbation; was a mental nurse for a short period but showed no application. Present illness began one month before admission; she became moody, obstinate, and said she had lost her soul; tried to jump out of window and destroyed clothing. She was admitted to mental hospital under certificate in June, 1934. On admission she was in good physical condition, but dull, apathetic, and indifferent to her surroundings; later she became over-active, destructive, and impulsive; expressed ideas of death, masturbated openly; showed negativism, giggled foolishly, and grimaced. A course of dmelcos was given in July, 1934. Highest temperatures recorded 100·2°, 100°, 100°, 100·4°, 100°, and 100° F. After the injections she was more easily managed and her habits improved. She remained, however, dreamy, self-centred, and inclined to withdraw from others. Sent to occupational therapy department and proved a rapid and efficient worker. Had slight relapse in August, 1934, but gradually improved and was discharged in September, 1934, as recovered. Improvement maintained.

CASE 4.—Female, aged 27, married. Grandmother alcoholic. Previous history: intelligent, highly strung and given to worrying over trifles; she had a child four months before admission. Present illness: after a brief period of depression in which she expressed ideas of unworthiness, she passed into a mute resistive stuporous state; admitted to hospital in November, 1931, as a temporary patient; physical condition good, passed into excited phase; impulsively violent, erotic, faulty in habits; degraded and destructive. Dmelcos was given in April, 1932. Highest temperatures recorded 102°, 104·4°, 103·6°, 103°, 103·2°, and 102·4° F. Improvement followed immediately and she was passed on to occupational therapy department. She continued to be dreamy and self-absorbed, with feelings of unreality and a tendency to negativism and impulse. Discharged in May, 1932, with partial insight. Recovery completed in home surroundings; she has remained well since.

CONCLUSIONS

1. Thirty-four cases of dementia præcox were given pyrotherapy by injections of sulfosin and dmelcos. 2. Four recovered, 10 showed no improvement, 20 showed some improvement which lasted for varying periods. 3. Comparison of treated and untreated cases over a period of six years showed that no increase in the recovery-rate can be expected from this treatment alone. 4. Pyrotherapy is a useful preliminary to the re-education of schizophrenics by means of organised occupation. 5. The treatment can be repeated in chronic cases when a fresh attempt can be made to obtain the patient's coöperation. 6. Dmelcos has the advantage over sulfosin that there is no painful local reaction. The treatment is both simple and safe.

I am indebted to Dr. E. G. T. Poynder, medical superintendent of the hospital, for his help and suggestions.

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MEASUREMENT OF LOSS OF HEARING IN DECIBELS BY MEANS OF TUNING-FORKS

AND DETERMINATION OF HALF-AMPLITUDE-TIME

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THE measurement of hearing-power has lately been discussed in THE LANCET by Prof. Fraser-Harris [1] and by Dr. Phyllis Kerridge.[2] Prof. Fraser-Harris expresses the opinion that the audiometer will undoubtedly be used universally for all hearing measurements, and it certainly presents attractions which are apt to make us disregard its limitations. At the same time it would be a mistake to overlook the great advantages of tuning-forks such as otologists have long been in the habit of using.

The hearing, when tested by tuning-forks, has usually been expressed in percentages of hearing-power, whereas the audiometer gives it in loss of hearing-power as expressed in losses of sensation-units or "decibels." The advisability of charting defect of hearing in decibels has been stressed by Hallpike.[3] It can be effected by means of tuning-forks with the simple calculation described below, and the results can be entered in the well-known audiometer charts, tuning-forks thus taking the place of the audiometer.

For this it is only necessary to know the rate (in seconds) of the dying-down of the amplitude of vibration of the tuning-fork to one-half, called the "half-amplitude-time" (H-A-T).[4] If we count the number of seconds for which the sound of the tuning-fork is heard by the normal person after the patient ceases to hear it ("duration-deficit") and divide this by the half-amplitude-time, we obtain the number of half-amplitude-times contained in the duration-deficit. We have then only to multiply this number by 6 (or strictly 6·021) to get the loss in decibels, as one half-amplitude-time is equal approximately to 6 decibels. It can be expressed in the formula:

$$\frac{\text{Duration-deficit}}{\text{Half-amplitude-time}} \times 6 = \text{loss in decibels.}$$

It can also be effected by dividing the duration-deficit by the half-intensity-period and multiplying by 3. The loss of hearing in decibels can then be registered by putting a mark at the appropriate level in each column in the audiometer chart now in vogue (Fig. 1). The half-amplitude-times for the forks I use are the following:—

d.vs. ..	16	32	64	128	256	512	1024	2048	4096
Pitch ..	C_2	C_1	C	c	c^1	c^2	c^3	c^4	c^5
H-A-T ..	15″	10″	9″	4″	4·7″	2·3″	2·5″	6·5″	4·4″

In order to save calculation at the time of testing we can prepare a chart in the following way, showing the duration-deficits in seconds of each fork corresponding to the losses of hearing for every 10 decibels. The half-amplitude-time (in seconds) of the fork multiplied by 1·66 gives us the duration-deficit for a loss of 10 decibels; we enter this amount (or the nearest whole number) in the appropriate vertical column at the level of 10 decibels; at the level of 20 decibels we put twice that amount, of that of 30 decibels three times the amount, and so forth; the same process is carried out for each of the other forks. Fig. 2 is a chart thus prepared for the set of forks I use or for any other forks with the same H-A-T's.

To use the chart, we note the patient's duration-deficit for each fork and put marks in the corresponding positions on a blank chart, so getting a curve of the same nature as those obtained by testing with the audiometer, the left-hand column showing the amount of loss in decibels.

If it is desired to translate the loss of hearing in

[1] Fraser-Harris, D. F.: THE LANCET, 1934, ii., 481.
[2] Kerridge, P. M. T.: Ibid., 1935, i., 104.
[3] Hallpike, C. S.: Jour. Laryng. and Otol., 1933, xlviii., 19.
[4] Dundas-Grant: Jour. Laryng. and Otol., 1929, xliv., 380, and 1934, xlix., 233; and the description at the end of this paper.

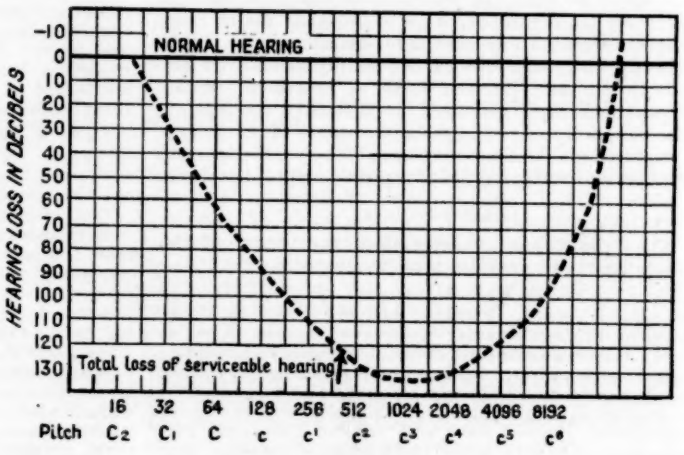

FIG. 1.—Audiometer chart.

decibels into the amount per cent. of hearing-power, the following Table (as used by Dr. Phyllis Kerridge) is useful, especially for losses of more than 20 decibels :—

Loss of hearing in decibels.	Percentage of hearing-power.
0	100·0
10	10·0
20	1·0
30	0·1
40	0·01
50	0·001
60	0·0001
70	0·00001
80	0·000001
90	0·0000001
100	0·00000001
110	0·000000001
120	0·0000000001
130	0·00000000001

For lesser losses a table prepared by Miss K. Dickson starts from the datum observed by her that a loss of hearing in seconds equal to the half-amplitude time of the fork (or a loss of 6 decibels) corresponds to a reduction of hearing to 25 per cent. of normal hearing-power; similarly a loss to the extent of half a half-amplitude-time (or 3 decibels) represents 50 per cent. hearing-power. All percentages are given to the nearest whole number, and other numbers can be interpolated without any considerable degree of error.

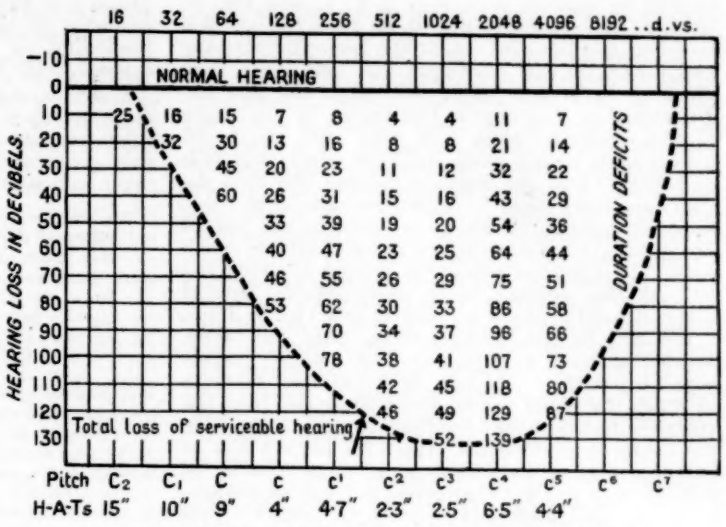
16 32 64 128 256 512 1024 2048 4096 8192 ..d.vs.
NORMAL HEARING
HEARING LOSS IN DECIBELS
DURATION DEFICITS
Total loss of serviceable hearing
Pitch C2 C1 C c c1 c2 c3 c4 c5 c6 c7
H-A-Ts 15" 10" 9" 4" 4·7" 2·3" 2·5" 6·5" 4·4"

FIG. 2.—Chart showing decibel losses for duration deficits.

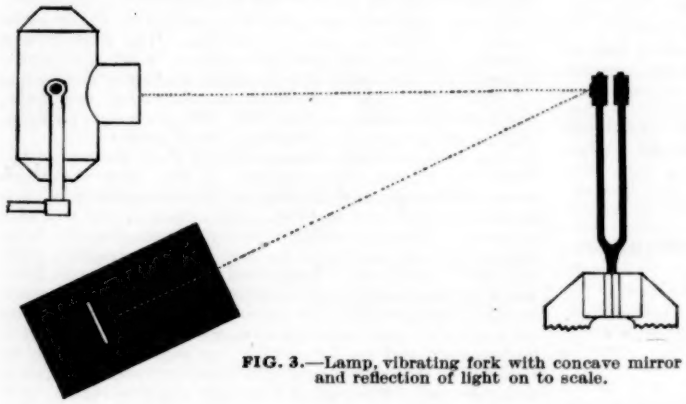

FIG. 3.—Lamp, vibrating fork with concave mirror and reflection of light on to scale.

Loss of hearing in—		Percentage of hearing-power.
Half-amplitude times.	Decibels.	
¼	0·75	83–84
⅓	1·5	71
½	3·0	50
1	6·0	25
1½	9·0	12–13
2	12·0	6
2½	15·0	3
3	18·0	2
3½	21·0	1

Determination of half-amplitude-time.—For forks ranging from 16 to 1024 cycles per second the diminution in amplitude to one-half may be observed by means of the microscope, but also by my simple optical method. The measurement is facilitated by the use of my "converging line gauge."

For the optical reflection method, a small concave mirror (as used for galvanometers) is fixed by means of wax on the outer side of one blade of the tuning-fork close to the tip and a counter-weight on the other blade, as in Lissajou's classical experiment. The fork is fixed in a firm vice and a light is directed on to the mirror from a spot-light or, if more convenient, from the otologist's own bull's-eye lamp, unfrosted and fitted with a metal or cardboard diaphragm having a central perforation ½ mm. in diameter (Fig. 3). The light directed on the mirror is reflected from it, as a luminous dot, on to a sheet of cardboard. When the fork is set in vibration the dot changes into a vertical line (Fig. 3 and Fig. 4A) which shortens more or less rapidly, the time required for it to shorten from any length to half that length (half-amplitude-time) being ascertained by means of a stop-watch. Any definite "waxing and waning" of the amplitude would suggest that the counter-weighting was inaccurately balanced.

For the converging line gauge, two lines meeting at a point are ruled on the cardboard and these are

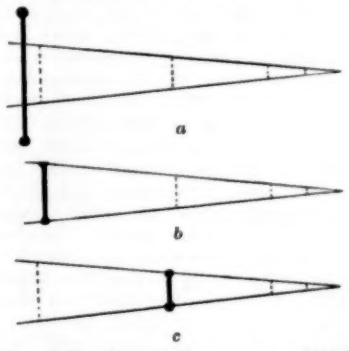

FIG. 4.—*Converging Line Gauge*—(*a*) Vertical luminous line before start of counting seconds. (*b*) The same when starting the count. (*c*) The same when stopping the count, i.e., at half-amplitude.

crossed by vertical ones, say, ⅛, ¼, ½, and 1 in. in length. The board is placed so that the vertical luminous line lies over one of the longer lines on the gauge, say, the one measuring 1 in. (Fig. 4B); then the stop-watch is started, and, when the line has diminished to ½ in. exactly (measuring by the centre of the rounded "knob" at each end) the board having been moved along until the bright line falls on the ½ in. line, the watch is stopped and thus the "half-amplitude-time" is ascertained (Fig. 4C). Large amplitudes should be avoided as the law of isochronous vibration applies strictly only to small ones. It is well to repeat the process several times and take the average, using, when possible, lines of different length (say 1 in. to ½ in. and ½ in. to ¼ in.).

For the highest pitched forks, 2048 and 4096, another method is required. The observer stands with his ear at say, 10 feet, or the furthest distance at which the sound can be distinctly heard, from the vibrating fork and then "sidles" towards it, keeping the loudness at the same degree till he is 5 feet or half the original distance from it. The number of seconds required for this gives the half-amplitude-time, as described and proved in 1929.[5] This "sidling" method is inapplicable to low-pitched tuning-forks, as they cannot be heard at a sufficiently great distance, but it can be used for 512 and 1024 which, along with 2048, are the most important tones for the understanding of speech. This experiment should be made in conditions as nearly as possible approaching to the open air.

Apart from other considerations, I venture to believe that the above method of measuring loss of hearing in decibels will meet modern requirements without any very great difficulty.

I gratefully acknowledge much valuable guidance from Prof. E. N. Andrade, Mr. R. T. Beatty, D.Sc., and Mr. W. V. Mayneord, D.Sc.

WEIL'S DISEASE IN A SEWER-WORKER

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Cases of spirochætosis ictero-hæmorrhagica are being reported in considerable numbers on the continent and in the Far East, including Australia. In this country several series have recently been published which suggest that the disease is not so rare has has hitherto been believed and that it is indeed not uncommon in people who work in wet, rat-infested surroundings. The most recent are those of Davidson and his co-workers,[1] who described 19 cases from Aberdeen, chiefly among fish-handlers, and Fairley,[2] who described 10 which had occurred among sewer-workers in London within twelve years. Alston[3] later described further cases occurring in London sewer-workers and reported the isolation of *L. ictero-hæmorrhagiæ* from slime in London sewers. Swan and McKeon[4] noted a hitherto unsuspected source of infection in certain coal-mines in Northumberland and Durham, and recorded 12 cases in miners. In addition, single cases have been described by Willoughby and Shera[5] in a girl, the cause of the condition not being recognised, by Wolstencroft[6] in a canal-worker in Hertfordshire, and by Halsted[7] in a sewer-worker in London. Quite recently Alston and Brown[8] have discussed the occupational incidence in this country and have suggested the possibility of prophylactic inoculation in those exposed to the risk of infection.

It seems desirable, therefore, to record sporadic cases as they occur and the following report is submitted because the clue to the real diagnosis was only given when the occupation of the patient was taken into consideration.

A sewerman, aged 44, working in London, came to the out-patients' department at St. Bartholomew's Hospital on May 21st, 1935, complaining of jaundice. On the 13th there had been a sudden onset of pains in the legs, the back, the shoulders, and the head. He felt ill and was slightly feverish, and a small herpetic patch appeared on the lip. He remained in bed and two days later he became jaundiced; the urine was dark and the motions pale. Next day the jaundice increased but the pains and general symptoms were less, and from that time he gradually improved. He was sent to hospital for advice on the eighth day of the disease.

He was found to be moderately jaundiced, there was herpes on the lower lip, and the liver was just palpable but not tender. No other abnormality was discovered. The urine contained a moderate quantity of bile pigment but no bile salts. At no time during the illness had there been any hæmorrhage or petechiæ, and in fact he does not appear to have been very ill. The only features distinguishing this from an ordinary case of catarrhal jaundice were the sudden onset with pains and fever which had been regarded as suggestive of influenza. Nevertheless in view of the occupation a tentative diagnosis of Weil's disease was made and the patient was admitted for investigation. At that time he was afebrile, with the bradycardia commonly found in cases of jaundice. The Wassermann reaction was negative and the van den Bergh test gave a direct positive result and an indirect reading of eight units of bilirubin. The blood count showed: red cells, 3,900,000 per c.mm.; white cells, 6600 per c.mm.; hæmoglobin, 90 per cent.; differential count normal.

The serum was submitted to Major H. C. Brown, of the Wellcome Bureau, who reported on May 24th that there was agglutination of *Leptospira ictero-hæmorrhagiæ* to a maximum titre of 1 in 1000. The adhesion test was also positive. The urine was repeatedly examined by Dr. L. P. Garrod who was unable to find any leptospiræ on May 23rd, but who found typical organisms on May 29th and 30th. On June 3rd considerable numbers of motionless leptospiræ were reported; on June 7th there were numerous leptospiræ; on June 13th there were small numbers of actively motile leptospiræ; and on June 24th no organisms could be detected. It would appear that these organisms are much more readily demonstrated in an alkaline urine, and accordingly the patient was put on sufficient doses of potassium citrate from the time of his admission.

Dr. Garrod also inoculated several guinea-pigs with samples of blood and urinary deposit on May 29th and these died on June 7th with typical Weil's disease, the organisms being demonstrated in large numbers in the liver.

The subsequent clinical course was uneventful. The jaundice had completely disappeared by the middle of June and the patient was kept in hospital until the urine should become clear of organisms. He was discharged completely recovered on June 26th. With the exception of the potassium citrate already mentioned no medicinal or other treatment was given.

The result of the pathological tests proves beyond doubt that the patient was suffering from Weil's disease, yet the clinical features of the condition were such that a diagnosis of catarrhal jaundice would have appeared justifiable if a clue had not been given by the consideration of the occupation of the patient. This illustrates the value in appropriate cases of the special methods of investigation which are now at our disposal, and it emphasises the fact that jaundice of doubtful origin occurring in a patient who might have come in contact with material infected by rats

[5] Dundas-Grant: Jour. Laryng. and Otol., 1929, xliv., 380.

should be submitted to examination by these methods. The technique of the agglutination and adhesion tests has been recently described by Brown,[9] who states that a positive agglutination may be found on the sixth day of the disease and that, with the adhesion test, the result is certainly well marked at the end of the second week and possibly earlier. In the present case the agglutination test was positive to a high titre and the adhesion test was also positive on the ninth day of the disease. A further interesting point about the case was the comparative ease with which the organisms could be demonstrated in a centrifugalised deposit after the urine had been made alkaline.

A question arose as to when it would be safe for the patient to be allowed to leave hospital. Comparatively little is yet known of the infectivity of the disease amongst humans, but the patient was kept in hospital until the urine was reported as being free from organisms. This subject has been considered by Cotter and Sawers,[10] who conclude that carriers are probably not important in spreading the disease.

I wish to thank Major Brown of the Wellcome Bureau for his reports upon serological tests in this case.

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LEPTOSPIRAL INFECTION FROM A STREAM

BY A. VICTOR NEALE, M.D. Birm., M.R.C.P. Lond.

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INFECTION with *Leptospira ictero-hæmorrhagiæ* is now regarded as a possible diagnosis in any case of acute febrile disease associated with jaundice. Several writers have reported clinical and laboratory observations on the disorder. Among them Alston[1,2] has recently recorded important facts concerning the infection in sewer-workers in London, and the close association of the disease with rats is now firmly established. Water, slime, &c., to which rats have access, may be found to be infected with the leptospira, and probably certain colonies of rats are a source of constant danger in this respect. There is no definite knowledge concerning the extent of leptospiral infection or carriers in the rat population, but it must be regarded as an important aspect of the "rat problem." Alston brings evidence to show that human infection may be obtained by inhalation of infected droplets of slime or by way of the alimentary tract through the drinking of contaminated water. The possibility of the germ entering the body through skin abrasions has also been considered by Alston.

Laboratory methods in the diagnosis of the disease have been elaborated during the past few years and now there are available definite criteria whereby the diagnosis can be confirmed. Doubtless, as in most bacterial diseases of man, there is a wide clinical range in the degree of leptospiral infection. Possibly mild infection may not be recognised. In fact Alston has given evidence, based on agglutination tests, that this is so among a certain number of sewer-workers. On the other hand, overwhelming infection with profound toxæmia and jaundice may render the disease rapidly fatal. Protective antibodies and agglutinins have been demonstrated in the blood-serum of recovered cases. In regard to the earliest recognition of specific agglutinins in the blood the data seem to be at present insufficient, but in one of Alston's cases a positive serum test was obtained within about ten days of the commencement of clinical infection. Agglutinins probably remain in the circulating blood for a long time; hence it may be possible to utilise serum from recovered cases in the treatment of the active disease in others.

The principal object of this paper is to record a case of severe infection by *L. ictero-hæmorrhagiæ* in a young man who had almost certainly swallowed infected water whilst bathing in a stream.

The patient, aged 20, had had no previous illness. During August, 1935, he had spent a camping holiday on a farm and bathed several times in an adjacent stream. He thought he had swallowed some of the water on one occasion. There were many rats in the immediate vicinity. His illness began when he returned home.

A week before admission to hospital he was taken suddenly ill with headache, vomiting, and fever. Temperature 103° F. Two days later jaundice developed and became progressively worse. Albuminuria and passage of blood in the stools occurred within the next two days. The fever began to decline but the jaundice continued and became deeper. No vomiting of blood and no hæmaturia. On admission to hospital on August 21st he appeared gravely ill but quite clear mentally, although at intervals he was very drowsy. There was intense icterus and conjunctival hæmorrhages were visible. Tongue furred but moist. Small hæmorrhagic points on the gums and visceral mucosa. Temperature 101°; pulse-rate, 100; respirations, 20. There was no diarrhœa but one or two pale, loose stools were evacuated daily. The abdomen was slightly distended but not tender. The liver was palpable two inches below the cotal margin. The spleen was just palpable. There were petechial hæmorrhages on the back. The urine contained a cloud of albumin and much bile pigment but no blood nor casts. Intermittent vomiting occurred. Blood count showed: red blood-cells, 4,960,000; white blood-cells, 12,000 (polymorphonuclears 78 per cent., lymphocytes 20 per cent., eosinophils 2 per cent.).

In view of the history and clinical picture a diagnosis of Weil's disease was made.

Treatment was chiefly symptomatic. He received six pints of plain fluids daily and liberal quantities of glucose. Intramuscular calcium gluconate was given. Arsenical preparations were withheld in view of the probable severe hepatic damage. The dehydration and severe toxæmia showed much improvement forty-eight hours after admission but the jaundice remained extreme. There was no pruritus. His temperature settled to a normal level and the pulse-rate fell to 60. A few days later the pulse reached a minimum of 50 but returned to 70 on recovery. On August 24th (ten days from the onset) the blood showed a positive biphasic van den Bergh test. The urine contained a number of leucocytes and a few hyalo-granular casts. No leptospiræ were seen in examination by dark-ground illumination. Cultural examination of blood was negative, and animal inoculation of the centrifugalised deposit of urine gave a negative result.

The patient's progress was very satisfactory, and one week after admission he appeared to be out of danger. The cardiac sounds were better and no further hæmorrhages appeared. The jaundice, however, remained very

[1] Alston, J. M.: THE LANCET, 1935, i., 806.
[2] Alston, J. M., and Brown, H. C.: Brit. Med. Jour., 1935, ii., 339.

marked; it was, in fact, still detectable four weeks later. The liver diminished to the normal size. The spleen became impalpable. There was at no time any glandular enlargements. In the early stages his tendon reflexes were diminished but neurological examination later gave normal findings. There were no ophthalmoscopic changes.

Three weeks after the onset of the illness Dr. Alston carried out tests with the patient's blood-serum and found that the serum agglutinated *L. ictero-hæmorrhagiæ* in dilutions up to 1 : 30,000, thus confirming the clinical diagnosis of leptospiral jaundice. He also, at the same time, examined a specimen of urine but was unable to demonstrate therein any leptospiræ. It is, however, probable that if daily specimens could have been examined in the early stage of the disease the infecting organism would have been found to be present. The patient finally made a complete recovery and is now well.

Clinically this case closely resembles those described as typical of the disease. Intense and rapid toxæmia with high fever, passing on to a deep icterus of obstructive type, and mucosal hæmorrhage, associated with polymorphonuclear leucocytosis, can be regarded as characteristic. Early diagnosis is very desirable in view of possible cross-infection in a ward. Severe cases of acute catarrhal jaundice may bear a superficial resemblance, and where the distinction is doubtful a blood count is helpful, inasmuch as in the catarrhal jaundice there is a relative or absolute lymphocytic response, in contrast to the polymorphonuclear response in true leptospiral infection. In Alston's cases the total leucocytes ranged from 15,000 to 20,000 per c.mm. The danger of rapid hepatic and renal failure is apparent in leptospiral jaundice, and it appears reasonable to attempt to combat this by an adequate and ample supply of glucose, by the intravenous route if necessary. The severe vomiting, so often seen in the disease, adds an extra danger to the patient by way of dehydration and further visceral impairment. The very high blood-urea reported in some cases is interesting in this respect. It is hoped that these general measures in treatment, combined with the possible use of blood or serum from recovered cases, will lower the mortality-rate of this potentially serious disease. In the case here recorded it must be granted that the patient was fortunate in possessing such a remarkable power of producing antibodies to the leptospira. As above stated, he developed an agglutination titre of 1 : 30,000.

ONCHOCERCIASIS IN ENGLAND

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Onchocerciasis a disease caused by a species of filaria, is endemic in some tropical regions of Central America and West Africa, but no sporadic cases have hitherto been described in this country. The development of rapid transport of cargoes between warm and temperate lands may lead, however, to the occurence of isolated cases in the temperate zone.

In August, 1933, a man, aged 62, was admitted to Mill Road Infirmary, Liverpool, suffering from hydrocele. A scrotal swelling had been present for five years, but during the past six months discomfort had been experienced owing to the rapid increase in the size of the hydrocele. Orchidectomy was performed by the late Mr. C. O. Davies and some cystic fibrous tissue was removed, and routine sections of this fibrous tissue showed the presence of a microfilaria 240μ by 7μ. The larva was sheathless and the nuclei did not extend to the tip of the tail, the most distal nuclei of the tail being oval in shape. Filaria were not found in the blood, nor was there any eosinophilia, and a diagnosis of onchocerciasis was therefore made.

Three days after the operation there was swelling of the scrotum with œdema of the wound; it was thought that this might have been due to the larvæ, but the œdema rapidly subsided and the patient was discharged. The patient was seen later and the scar was normal. According to Sharp [1] hydroceles due to onchocerciasis are not very amenable to surgical treatment as they are apt to result in prolonged suppuration, but in this case the wound healed by first intention.

The patient was closely questioned, but he insisted that he had lived all his life in this country and had, in fact, never left Liverpool; the infection must therefore have been contracted in Liverpool. According to Strong [2] the human carrier constitutes the important means of transporting onchocerciasis to distant localities, but the infected "black-fly" (simulium) is the means of transmission of the disease from man to man in regions where it is endemic. It seems likely, however, that this patient, who was a cotton porter, working at the docks, was bitten by an infected black-fly brought to this country on a cargo vessel. It has been estimated by Bequaert [2] that the biting black-fly, the female, lives for several weeks, although it was difficult to keep them alive in captivity for more than a few days.

If this theory of infection is correct this case is an exception to Strong's rule; but another possibility must be considered. There are several species of black-fly to be found in this country, and they have been described by Edwards,[3] though it is not known if they are capable of acting as vectors. As far as is known there are no infected black-fly in this country.

This question has arisen in the United States of America; Johnstone and Larsen [4] have pointed out that onchocerciasis has a northward drift in America, and that the possibility of the simuliidæ in the United States acting as vectors of the disease should be investigated. The situation of the lesion pointed to the importation of a species of black-fly from West Africa, as the American fly usually attacks the head, and the scalp is the common site of the nodule; Sharp [1] described several cases of hydrocele in his African series, so that probably the West African species, *S. damnosum*, was responsible for the infection in Liverpool.

I am indebted to Dr. W. M. Frazer, medical officer of health for Liverpool, for permission to publish this case.

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London Jewish Hospital. — An appeal for £60,000 has been launched for this institution with the approval of King Edward's Hospital Fund. It was founded some fifteen years ago as an out-patients' department and is now a general hospital with 100 beds. Over 28 per cent. of the patients are not of the Jewish faith. A new nurses' home is a necessity as the present arrangements for their housing, recreation, and instruction are inadequate. A new home will release wards, which at present are being used as cubicles for the nurses, for in-patients of whom there is a long waiting-list.

MEDICAL SOCIETIES

ROYAL SOCIETY OF MEDICINE

SECTION OF EPIDEMIOLOGY

IN his presidential address to this section on Oct. 25th Surgeon-Captain S. F. DUDLEY, R.N., considered the

Biological Approach to the Study of Epidemiology

Epidemiology, he said, can be studied with advantage as that branch of academic biology which deals with the physiological reactions of parasitic and host groups of organisms to each other. After paying a tribute to the late Theobald Smith as one of the greatest investigators of host-parasite relationships which are the foundation on which scientific epidemiology is built, Dr. Dudley stated that "natural selection" was the fundamental theory in biology and if the principle was accepted with all its implications then all biological hypotheses, including speculations on the cause of epidemiological phenomena, must harmonise with the principle of natural selection or be discarded as false. Immunity or resistance to parasitic infection was so variable among members of the same race or species that immunity characters must be represented by many genes in the hereditary mechanism. Insuperable difficulties were often encountered when attempts were made to distinguish inherited or natural immunity from acquired immunity. These difficulties were not rendered any easier when it was realised that immunisability, the potentiality of acquiring immunity, and the durability or permanence of immunity, were also hereditary characters which could be augmented by experience, that is by contact with specific bacteria or their products. In fact the difficulty of deciding the relative importance of nature and nurture was as great to the immunologist as to the eugenist and social worker. He illustrated these points with the supposed racial immunity of the negro to diphtheria in Africa, where clinical diphtheria is rarely seen and the Schick immunity very high; whereas the negro in the United States exhibits little difference from the European as regards Schick immunity and diphtheria mortality.

Modern work on gene-mutation mutation rates and X ray mutations suggests to Dr. Dudley that parasitic variability is a more frequent cause of epidemics and variations in the clinical pictures of disease than most bacteriologists have hitherto been prepared to admit. The multitude of types and varieties into which all bacterial species are now split probably, he said, arose comparatively recently as mutants of a common ancestor; it was likely that many of these parasitic mutants cropped up over and over again and were selected for survival at the moment when the conditions were propitious for their dissemination throughout the host herd. In illustration of this he described some peculiar changes in the relative prevalence of the variants of diphtheria bacilli, virulent and avirulent, "mitis," "intermediate," and "gravis," at different times and places. He also gave examples showing how under apparently identical conditions the carrier rate from meningococci could vary from 5 to 50 per cent. In contrast to the sexual metazoa, Dr. Dudley continued, the doctrine that acquired characters are never inherited is not strictly true when applied to unicellular organisms, because new inheritable characters can be impressed on certain protozoa and bacteria by their environment. Trypanosomes can be trained to tolerate therapeutic drugs in doses that, previous to their education, would have been immediately fatal, and the trypanosome will retain this drug-resistant character even after passage through the tsetse fly. Parasites, he said, are highly specialised in one character, namely, "host specificity," that is, with numerous exceptions each host animal has its own parasitic flora and fauna adapted to that species and no other. Moreover parasites are only adapted to living hosts and cannot compete with the putrefactive and saprophytic organisms which invade their host after death. Therefore the popular fear of getting disease from animals and corpses has little foundation in fact.

Nevertheless, it is not improbable that certain outbreaks of disease may be due to aberrant parasites who have strayed out of their normal hosts in an endeavour to adapt themselves to a new habitat. Disease and epidemics are not the striking phenomena in wild untouched nature that they are among man and his domestic animals and plants. In wild nature the organisms are in equilibrium with each other and their environment; which means that the average number of each species is more or less constant. The environment is supporting the maximum number of each species which is possible under the prevailing conditions. The natural fecundity of the species is balanced against the pressure of the environment and there are no vacant places left for the further multiplication of the species. When an animal is increasing in numbers there must be vacant places awaiting occupation in its environment, the struggle for existence is less severe and natural selection less active so that under such circumstances unfit members of the species may be able to escape elimination. There are still many vacant places in man's environment, and in consequence there are still as many left for his parasites. Man has to compete with no other species but his own, and his parasites whose destiny is of course bound up in that of their human hosts. This, said Dr. Dudley, is one reason why man can still multiply and at the same time carry a heavier handicap of disease than any other species; but the chief reason why disease should be the special prerogative of *Homo sapiens* is that he is for ever altering and interfering with his own (and therefore his parasites') environment, and the latter never have time to adapt themselves to one environment before they find themselves in another.

SECTION OF PHYSICAL MEDICINE

AT a meeting of this section on Oct. 25th Dr. C. B. HEALD read a presidential address entitled

Electrotherapy 1910–35

As an illustration of the great development of electrotherapy in the present reign, he showed the inventory of apparatus—four pieces—at the Royal Free Hospital in 1910, the much longer list of 1920, and the imposing equipment of the present day. The number of treatments given every year had risen from 10,000 to 80,000. Dealing with the various forms of therapeutic electric current, he showed oscillographic tracings illustrating the improvement in the type of impulse from the early faradic coils to the latest developments of the rhythmic myotroph. He devoted a large part of his address to the various methods of heat treatment which had been introduced during the

reign for combating shock, inducing sweating, or artificially raising the temperature of the body. The earliest device was a radiant heat shock cradle, containing twelve carbon filament bulbs. This had given fairly good results but improvements had been made by using elements which generated far less light and more heat. He had lately made experiments to compare the heat generated by the various types of apparatus and the pyrexia produced. The apparatus investigated had been the old type radiant heat cradle, the London County Council model shock cradle, the infra-red tunnel of the British Red Cross Society, and an electric blanket and short-wave apparatus of two types, the inductotherm and Wilde's pyretic bath. The British Red Cross Society used a heating element consisting of a self-insulated wire in a quartz tube. The infra-red rays were greater and the light less than in the old cradle and the clinical results were better; in particular this cradle relieved periarticular muscular spasm.

The effects of heat treatment differed widely according to the mixture of the rays, the site of entry, the intensity of the beam, and its duration. Tests showed that once the heat-regulating mechanism of the body was altered, either by a kind of breakdown or a readjustment on a new plane, very little energy was required to maintain the general body temperature above normal. Treatment with a radiant heat bath should not be started until at least two hours after a light fluid meal, or nausea and other distressing symptoms might occur. The patient's toleration and comfort were enhanced if he drank large quantities of glucose and saline fluid flavoured with lemon. The concentration of saline must be 0·2 per cent., which was not a pleasant drink but which was absolutely essential to replace the salt lost in excessive sweating.

The conditions of the experiments had been made as standard as possible. When the L.C.C. cradle had first been tested at the Royal Free Hospital with a dummy on the bed the temperature had risen rapidly to a very high level and large differences of temperature were observable on the surface. On the other hand, when a patient was in the bath the temperature on the top of the blanket became stable at 152° F. and the skin temperature under the blanket became stable at 116° F. This illustrated the powerful thermostatic effect of the patient. A radiant heat bath of this type could rapidly produce sweating and rise of temperature with full power, but so intensive a treatment could not be good for shock or safe for prolonged pyrexia. When six lamps were used instead of twelve the temperature, pulse-rate, and blood pressure were not affected while the skin temperature was slightly raised. The electrical blanket provided an efficient and not uncomfortable method of transferring heat energy to the patient.

Dr. Heald referred to the lecture delivered by Dr. C. A. Neymann before the Royal Society of Medicine in the present year, in which the American worker pointed out the advantages of securing hyperpyrexia by high-frequency current: ordinary diathermy, short-wave diathermy, and inductothermy. Dr. Heald showed a chart of a typical response to diathermy from both hands to both feet; temperature, pulse-rate, and respiration-rate were all raised and sweating was profuse. He had included in his experiments a test of short-wave apparatus and inductothermy and had, like Dr. Neymann, concluded that inductothermy was probably the best of these methods. It differed in that the current was not passed directly through the patient but through a coil of insulated wire laid upon the pack in which he was wrapped: usually an airtight bag with a zip fastener. The generator was said to have an output of 950 watts, and the very rapid expansion and contraction of the electric field in the wire caused eddy currents within the conducting parts of the body—the fluids, muscles, and nerves. A feature of inductothermy treatment was that the feeling of warmth it produced remained for several hours after treatment was discontinued. On the whole, the electrical methods were more comfortable than the application of rays.

Dr. Heald commented on the difference between the American and the English reports on the white cell counts during treatment. While the white cells were generally reported by English workers to fall, the Americans showed a great increase. It was possible that the Americans had not allowed, as he had, for dehydration. The count was an invaluable control, for a rapid fall was a signal to stop treatment.

At the close of his address, Dr. Heald gave a demonstration in support of his belief that infra-red rays actually penetrated the patient's body and exerted an effect upon its constituents. A photo-electric cell was connected to a Cossor Robertson electrocardiograph of the latest type, and the sensitive bridge of the cell was completely covered with a substantial piece of meat; but when infra-red rays were directed at the meat the oscillograph showed a vigorous response. It showed a similar response when Dr. Heald irradiated the meat with a Kromayer lamp fitted with a filter which cut out all visible rays. He took this result to indicate that, besides the ultra-violet rays which it is constructed to emit, the Kromayer lamp also emits an isolated band of infra-red rays and that its therapeutic effects may be due in considerable measure to this band—a sharply defined and comparatively narrow band being known to have a greater effect than the same band grading off into higher and lower wave-lengths.

MEDICAL SOCIETY OF LONDON

AT a meeting of this society on Oct. 28th, with Prof. G. E. GASK, the president, in the chair, a discussion on

Electrical Injuries

was opened by Dr. MACDONALD CRITCHLEY. In each year, he said, the number of fatalities from electrocution in England and Wales was 50 or 60, but there must also be a very large number of minor and major injuries both in industry and in the home. In Germany the number of deaths was higher—probably about 400 annually—and in the United States it was 700 to 800. In this country the consumption of electricity was four times what it was in 1912, but the mortality in 1934 was lower. Several factors determined the type and severity of the accident, and the first was voltage. In general terms, the higher the voltage the greater the danger; but 45 volts had been known to kill a person, and 60 certainly would do so. Deaths from contact with the ordinary electric lighting main were very common; on the other hand, cases were on record in which people had touched a main and received 132,000 volts and still survived. The next factor was amperage: it was the amount of current passing through the person which was important rather than the pressure; 20 to 30 amperes was an unpleasant strength, 80 to 90 was dangerous. The type of

current was also important; volt for volt, the alternating current was much more dangerous than the direct, and that fact was borne out by the Home Office figures, particularly up to a voltage of 250. The next important factor was the resistance of the tissues. Skin, especially when dry, was highly resistant to the electric current; sweating reduced its resistance 12 times and immersion in water 25 times. The best conductor of electricity in the human economy was the cerebro-spinal fluid, and it was closely followed by the blood, the muscles, and the liver. The nervous system was resistant; it had been found that the sciatic nerve had eight times the resistance of Atlantic cable. A further important factor was the duration of the current's passage; momentary contact with a heavy charge might be innocuous, but the longer the duration the more the tissue resistance dropped.

A person receiving a strong electric shock almost always experienced highly unpleasant pain; survivors of such shock described an agonising pain throughout the body. Many complained of deafness and tinnitus if the shock continued; often they were completely blind, and some described actual hallucinations—balls of fire, a brilliant setting sun, balls or flashes of light, and moons. Some spoke of a feeling of a shrinkage of the body, and a loss of time-sense, so that a contact of five seconds seemed like ten minutes. In some cases there seemed to have been a notable absence of pain, though other sensations were felt. Unconsciousness did not necessarily follow, but might do so. It might result immediately from pain, or the person might fall to the ground soon after receiving the shock and remain unconscious for minutes, hours, or a day or so; during this period there might be motor agitation, convulsion, twitching, tremor, and a sense of increased intracranial pressure. The tension of the cerebro-spinal fluid might be raised, and it might contain blood; some stated that its temperature was raised. As in concussion injuries, there might be retrograde amnesia—e.g., in the case of a boy who climbed up a pylon, made contact, fell to the ground, and, when he reached home, asked for his midday meal, although he had already had both dinner and tea. Another type of unconsciousness was that which came on after an interval of, perhaps, some hours; this was due to increasing cerebral œdema.

Electric burns were abnormally deep; secondly, they tended to spread in the first few days after the shock, and this might be dangerous because of the liability to reactionary hæmorrhage, especially as one effect of the shock was to make the blood-vessels of the locality unusually friable. In Vienna this danger was so well recognised that means of dealing with sudden hæmorrhages from this cause were always kept ready in the hospitals. In comparison with a burn from an ordinary fire, the surrounding erythema was much more limited. One authority stated that electric burns were painless, but Dr. Critchley did not agree, though the explanation that the pain might be due to the burning of the clothing was a possible one. Another statement which he did not accept was that electric burns were sterile. They healed rapidly, and the resultant scar was a good one, mostly free of contractures, it was said; but he had seen bad deformities follow. The points at which the current entered and left the body were usually indicated by rounded greyish areas, which were painless. The patients showed a peculiar metalisation of the skin, an appearance much resembling morning frost on a pane of glass, due to minute depositions of copper in the dermis. In severe cases the burns might amount to gigantic tissue necrosis; indeed, a whole limb might be almost amputated by the electric current.

Bony injuries caused by electricity were important though less common than other forms. When a current passed through a long bone it produced a longitudinal fracture, without fragmentation, but the apposition was so good and the fissure so narrow, that it was not recognised, even by radiography. As pain persisted, another radiogram was taken, and by this time the parts fractured were not in such close apposition, and osteomyelitis, and perhaps sequestration, followed. A second type was a fracture or fracture-dislocation due to direct muscle violence. A third was injury of the skull; this was specially apt to occur when the skull formed one of the points of contact. In one such case a man was picked up unconscious and all that was seen on his head was a slight pimply swelling, with a mark on the sole of the foot where the current had apparently left the body. The "pimple" subsequently developed and formed an extensive ulcer, which was sharply punched out, with much thinning of the underlying skull.

The remote effects of electric shock were rarities but often missed. They were either ocular or neurological. The ocular were two only: optic atrophy and cataract. The neurological were much more complex, and might consist of organic disease of the spinal cord or brain. It must also be realised that organic neurological diseases could be precipitated by electric shock—e.g., disseminated sclerosis, parkinsonism, cerebral tumour, myasthenia gravis. Cerebral complications were not very common; they took the form of focal lesions—i.e., hæmorrhages, softenings, or abscesses. There were records of cases in which the onset of epilepsy was ascribed to an electric shock. The post-concussional syndrome was also seen in these cases, especially those in which the head formed the point of electrical contact. Such a patient might draw compensation for years because of giddiness, headache, and the like. Much more characteristic were the complications in the spinal cord. Here the picture was like that of amyotrophic lateral sclerosis; there was a wasting of the muscles of the hand, which spread up the arm, and then developed in the other hand; later the legs became affected, and there was pyramidal involvement, with double extensor plantar responses. There seemed to be a close association between the electric shock and the onset of spinal atrophy, and the term "spinal atrophic palsy" was used in this connexion. Peripheral nerve lesions were uncommon after shock, but they did occur; there might be palsy of either median or ulnar nerve.

Psychological disorders often started after severe electrocution; or they might be modified—and even cured—by the shock. Psychoses had been relieved, and in some cases cured, by electric shock, just as by lightning stroke; a boy in an asylum suffering from dementia præcox climbed up a pylon and after recovering from the immediate shock was mentally much better. Hysteria was very common after electric shock, as after lightning. A striking case was that of a man in Berlin who fell on to an electric line so that his arm came into contact with the live rail. His arm was paralysed and apparently insensible to touch, and it remained inert at his side for a long time. But later it was clearly proved that there was no current in the rail at the time of the fall.

The actual cause of death remained a problem. One theory was that it resulted from ventricular

fibrillation; another that it was due to medullary inhibition of respiration. Dr. Critchley thought it probable that both were correct. Books on ambulance work still insisted that if necessary artificial respiration should be continued for hours, though it was established that the brain cells could not revive if deprived of circulation for 20 to 30 minutes. But as respiration and circulation, though very feeble and not detectable, might still be carried on, it was well not to alter the ambulance instructions. As regards prevention, Dr. Critchley paid a tribute to the adequacy and thoroughness of the Home Office Regulations, and the energy with which failure to control industrial apparatus was punished. This control, however, did not extend to home accidents, and there the need seemed to be proper education, especially about the risks of worn flex for ironing or lighting.

Mr. ERIC PEARCE GOULD said that for judicial electrocution at Sing Sing Prison a current of 22,000 volts was used, and it was kept on until the flesh began to burn, a matter of some 17 seconds. If the stethoscope showed that the heart had not ceased to beat, the doctor signalled for a second discharge, but this was very rarely necessary. He gathered that there was a good deal of pulping of the brain immediately subjacent to the head injury. He had seen some cases of electrically caused injury on the Southern Railway in the old days. It was a different story now with the third conductor rail, because the voltage there was only 650 of direct current. Of 2274 accidents on that railway in 1934, the total number of electrical injuries was 38, and only two of these were fatal, both the victims being children (aged 6 and 12) who had strayed on to the line. The average period of incapacity following the injuries was 7 weeks 2 days. That surprised him, because among those who had sustained electrical accidents he had noted a definite distaste to resume the work, from fear of a recurrence of the experience. His impression was that burns caused by electricity were not as painful as those caused in other ways. Some healed with scars which would be recognised as those following burns, but in some cases, despite the extent of the burn, there was surprisingly little scarring.

Mr. ZACHARY COPE related cases of severe lightning burns and electric shock which he had seen.—Commander T. N. D'ARCY described a case in which an electric shock from a main was carried along a stream of urine.—Mr. A. SIMPSON-SMITH gave a short description of legal electrocution carried out in Massachusetts, and Dr. CRITCHLEY briefly replied.

LIVERPOOL MEDICAL INSTITUTION

A MEETING of this institution held on Oct. 17th, with Dr. C. O. STALLYBRASS, the president, in the chair, was devoted to a discussion on

Coronary Thrombosis

Dr. E. WYN JONES described the coronary circulation as demonstrated by radiography. He laid emphasis on the age changes in the vessels and especially on the development of anastomotic channels with increasing age.

Dr. H. WALLACE JONES outlined the clinical aspects of coronary thrombosis. Only during the last few years, he said, had it been realised that most patients recover from the attack. The illness fell into two stages: (1) the initial anginal attack, and (2) the evidence of myocardial infarction and damage. During the attack important features were pain, vomiting, air-swallowing, fall in blood pressure, and distant heart sounds. The subsequent signs included pericardial friction, congestive failure, pyrexia, leucocytosis, emboli, and abnormal rhythms. Atypical forms of the condition included the painless, ingravescent, and abdominal types.

Dr. E. NOBLE CHAMBERLAIN, speaking of the electrocardiographic changes, said that one of their most important features was frequent variation within a comparatively short period. Lack of knowledge meant that the treatment was not yet on a fully satisfactory basis. Morphia should be used in doses sufficient to relieve the pain, which often meant giving as much as 1 grain within two hours of the onset. The usual treatment of shock was indicated in cases where collapse was conspicuous, and if the fall of blood pressure was extreme adrenaline or ephedrine might be helpful. Digitalis should be reserved for cases in which definite signs of congestive heart failure develop a few days after the attack of coronary thrombosis, and those complicated by auricular fibrillation. Oxygen—preferably given in an oxygen tent—was useful in cases where cyanosis and dyspnœa were prominent. In the subsequent treatment the most important point was the restriction of undue mental or physical exertion, the treatment of the angina of effort which usually followed, and the enforcement of rest in cases where recurrent cardiac pain occurred without effort.

Prof. J. H. DIBLE described coronary thrombosis as the last act in the long drawn out drama of coronary atheroma—a disease which in some people affected the coronary arteries much more than others. By the time the disease had advanced to the stage of thrombosis the chronic ischæmia had usually led to a good deal of focal destruction of the myocardium which had a high oxygen-consumption and when actively contracting demanded 1–1½ litres of blood per minute. The thrombosis was followed by a cardiac infarct and a new set of conditions arose. The process of organisation began immediately, whilst pericarditis developed on the surface and mural thrombosis frequently in the interior of the ventricles. Both systemic and pulmonary emboli were possible consequences of the latter whilst autolytic softening of the infarct might occasionally result in cardiac rupture. When the organisation of the infarct was complete, it left a fibrous scar in the ventricular wall which might become the site of a cardiac aneurysm.

The PRESIDENT said he would add a word on how *not* to diagnose coronary thrombosis. Sudden death in a person not known to have suffered from coronary disease did not justify this diagnosis.

Prof. JOHN HAY spoke of the importance of the atypical manifestations. Correct diagnosis was necessary because prolonged treatment was advisable after even a minimal thrombosis. The usual symptoms of pain and collapse might be present but mild, or the pain might be absent or negligible, with some other feature dominating the picture—e.g., apprehension, much dyspnœa, congestive cardiac failure, a pathological rhythm, or symptoms suggesting an acute and serious abdominal lesion. The proportion of cases in which pain was absent was far higher than was generally appreciated.

Dr. I. HARRIS said it was risky to rely on electrocardiographic evidence alone, because often electrocardiograms suggested coronary thrombosis when no clinical evidence of it could be found. The condition

was a common complication of high blood pressure. With a high blood pressure the pressure in the coronary circulation ought to be enormously increased; and yet it was known that the factor which favours thrombosis is a slow and feeble circulation. This was a significant fact. Dr. Harris emphasised the importance of systolic pressure readings. The pressure was low after the attack, and a rise during convalescence was a favourable sign. A fall was always an indication for prompt action—e.g., putting the patient to bed and possibly administering cardiac tonics. He found strophanthin much more useful than digitalis in these cases. After the acute stage of coronary thrombosis was over graduated exercise was beneficial in suitable cases.

Dr. F. B. JULIAN said that as digitalis was likely to cause a rise of pressure in the coronary arteries, and a raised pressure was one of the factors in the production of coronary thrombosis, caution was perhaps called for in the use of digitalis in the senile type of auricular fibrillation.

Dr. R. C. WEBSTER referred to syphilis as an ætiological factor. He asked whether the clinical syndrome ascribed to coronary thrombosis might not occur, in the absence of actual thrombosis, in cases of defective coronary circulation.

MANCHESTER MEDICAL SOCIETY

AT a meeting of this society on Oct. 2nd, Dr. R. G. GORDON, of Bath, read a paper on

Osteo-arthritis and its Concomitants

Osteo-arthritis, he said, is too often confused with other diseases included under the generic term of chronic rheumatism, and not enough thought is given to the treatment of the individual case. Osteo-arthritis should be distinguished from ossification of muscular, ligamentous, and fascial insertions. It is primarily a degenerative condition, exostoses being compensatory and secondary, and it occurs in joints whose blood-supply is deficient and which have been subject to previous disease, strain, or trauma. Essentially it is a degeneration in the central cartilage, leading to thinning, ribbing, and finally disappearance with exposure of underlying bone. The bony changes consist in formation of exostoses and eburnation of exposed parts; the capsule and ligaments are at first fibrosed but may eventually disappear leading to new muscular attachments.

Symptoms of osteo-arthritis are pain, stiffness, and limitation of movements with deformity in late stages. Pain is due to pressure on exposed bone and muscular spasm. Stiffness and limitation of movement are only occasionally due to exostoses and loose bodies, and generally due to fibrositis, muscle spasm, and fibrosis of the joint capsule. Deformity is due to changes in bony architecture and to new attachments of muscles pulling the bones out of position. Diagnosis can be confirmed only by radiography, but pain, stiffness, limitation of movement, arterial degeneration, and neighbouring fibrositis in an elderly patient should always arouse suspicion. Prognosis though eventually bad should not be too gloomy, since much can be done to stop or delay progress and to remove the concomitant fibrositis.

Treatment is general, local, and adjuvant. General treatment consists of measures to arrest cardiac, renal, and vascular degeneration, especially those which will dilate the capillary bed and promote elimination by skin, kidneys, and bowels. Local treatment is directed to increasing circulatory efficiency of the joint, relieving pain, and reducing muscular spasm. Protein shock has had a vogue for this purpose, but physical methods especially heat applied to the joint are more useful. No trauma must be applied to the joint; therefore manipulation must be carrried out with the greatest care and operation is applicable only to carefully selected cases. Splinting is often very useful, especially the walking calliper in hip and knee cases if the patient can be persuaded to tolerate it. Adjuvant treatment is chiefly directed to the accompanying fibrositis. In the elderly subjects of osteo-arthritis this will consist of the right kind of massage and eliminative methods, chiefly in the form of physical and hydro-therapy. Removal of septic foci will have only a secondary place since both the osteo-arthritis and fibrositis are chiefly due to metabolic changes consequent on vascular degeneration and faulty elimination. Diet in fibrositis and osteo-arthritis is not specific, but is of importance in so far as it may reduce obesity, prevent cardiorenal degeneration, or preserve the patient from metabolic disturbances due to indigestion.

ROYAL ACADEMY OF MEDICINE IN IRELAND

Dr. V. M. SYNGE gave a presidential address to the section of medicine at a meeting held on Oct. 11th, with Dr. A. R. PARSONS in the chair. His subject was

Tendencies in Present-day Medicine

The progress of medicine in the past, he said, is represented more accurately by a series of waves than by a straight line. We cannot tell whether present-day progress is nearing its crest or not, but we do know that the curve is still rising. During the past few decades pathology, bacteriology, biochemistry, and psychotherapy have in turn been to the fore, and we notice here a tendency to move from the more concrete to the less concrete. The mental equipment of the doctor has four elements:

(*a*) Inherited and acquired mentality: disciplined thinking power, common sense, and free mental judgment.

(*b*) Technical knowledge acquired as a medical student.

(*c*) Knowledge gained by practical experience.

(*d*) Absorption of new medical methods and discoveries.

His capacity for diagnosis, treatment, and prognosis may be expressed by $a+b+c+d$. As age advances b diminishes, c increases, a is constant, d varies greatly and depends in some measure upon a. Good secondary education is necessary if the value of a is to be maintained; b is tending to become of less practical value as the medical curriculum is lagging more and more behind modern medical knowledge. This is likely to continue as long as the dominant idea in the alteration of medical education is to add to the curriculum without at the same time eliminating out-of-date material. The value of d depends not only upon new discoveries but also upon their accessibility. Research has not produced as much fresh knowledge as it should have. Apparatus and equipment should not be considered of more importance than the researcher himself. Too much research work is done to order, and work done for the sake of publication is often of little value. Medical literature is now unwieldy. Indexes of medical literature are inadequate and not sufficiently international. In the patient's mind, said Dr. Synge, the idea of

magic is being transferred from the doctor to his instruments; but despite the deluge of quack medicines and pseudo-scientific advertisements the patient is gradually advancing in his medical outlook.

Dr. H. F. MOORE said that if facilities for investigation existed in Ireland it would be easy to regain the fame which the Irish medical school had held in the days of Stokes, Corrigan, and Graves. A scheme started by the Academy of Medicine had now been adopted by the authorities.

Dr. R. J. ROWLETTE spoke of a reference by the president to team-work. The word "team" could be applied in two different senses which it was important to distinguish. It had first been used for a group of three or four practitioners who had banded themselves together for commercial purposes in running a practice; they had different capacities—surgeon, physician, or other specialist—but they dealt with everything that came their way. On the other hand, the term was often applied to a group of practitioners, each with a separate line of approach, who could be assembled to deal with a particular case. Instead of the team being a fixed group, it was a group assembled for a particular occasion to deal with a particular problem. Such a group could be readily assembled in any university centre, and without such coöperation medicine would be much the poorer; but very little could be said in favour of the team in the narrow commercial sense.

Dr. E. T. FREEMAN referred to the pressure put on the medical profession to use various drugs when they had not even had an opportunity of trying them. A doctor was expected to buy a certain apparatus because his patients, having read newspaper advertisements, expected him to have it.

Dr. W. R. F. COLLIS maintained that Irishmen were really well fitted for research, but had hitherto lacked opportunities. Research was essentially a whole-time job, and there was a need for whole-time research clinicians.

Dr. G. C. DOCKERAY said that there was a tendency to send to the laboratory everything except the patient and the necessary information. He hoped that under the new research scheme technicians would be properly trained, and paid a salary in some degree commensurate with the work they did.

Dr. C. J. MCSWEENEY spoke of the rise of the preventive idea in medicine. Nowadays no child ought to develop diphtheria. Immunisation against scarlet fever was also possible, and other diseases were rapidly coming into the preventable group.

Dr. ALAN THOMPSON considered it unfortunate that the pathologist and the radiologist were so much out of touch with the material with which they had to deal. There was a great opening for the introduction of the pathologist to the hospital wards.

The PRESIDENT in his reply said he thought research laboratories produced relatively little of value in proportion to their number and to the amount of work done in them. Medical students, he believed, were obliged to learn too much anatomy and physiology; they should not be allowed to enter medical schools without some preliminary scientific knowledge. Chemistry and physics were taken so fast that they were not approached in a scientific spirit. A student's mind should be trained so as to enable him to take up facts which would come into force a few years after he was qualified. Medicine should be taught as a dynamic moving subject and not as one which did not change.

REVIEWS AND NOTICES OF BOOKS

A Century of Municipal Progress

1835–1935. Published under the auspices of the National Association of Local Government Officers by George Allen and Unwin, Ltd., London. 1935. Pp. 511. 21*s*.

"FOR the average English citizen," said Graham Wallas, "the possibility of health, of happiness, of progress towards the old Greek ideal of 'beautiful goodness' depends on his local government more than any other factor in his environment." Of this, however, the average citizen is unaware; he takes his local government for granted, and is far from realising that the story of how it came to be what it is and what it does for him is of fascinating interest. In this book, which is issued under the auspices of the National Association of Local Government Officers, the story is well told and deserves to be read by all who care for the promotion of good citizenship. The book is the work of seventeen writers, each an outstanding authority on the subject with which he deals: Sir George Newman writes on public health, Sir Josiah Stamp on municipal finance, Sir Frederick Kenyon on municipal museums and art galleries, Sir E. D. Simon on housing and civic planning, and Mr. Herbert Morrison on highways and transportation; and in a brilliant introductory chapter, "Before 1835," Prof. Elie Halévy shows how the English genius for local government found effective expression long before the Municipal Corporations Act was passed a century ago. Mr. L. Hill, general secretary of the N.A.L.G.O., contributes a valuable article on the municipal service, which presents an enormous fund of information, not readily accessible elsewhere, on the conditions under which local government officers are recruited and do their work. In a book to which so many authors have contributed some duplication was perhaps unavoidable; the history of public health legislation from 1848 to 1875 is told both by Dr. J. L. Hammond and Sir George Newman and the *Times* joke about Chadwick's acting as a nursemaid to John Bull is quoted in both articles.

Sir George Newman's scholarly article is of special interest to medical readers. He surveys public health problems broadly and in relation to other advances in social amelioration, pointing out that what has been achieved in the last hundred years was based on the work of pioneers in the eighteenth century and even earlier. More might with advantage have been said of the later developments of preventive activity; for there is only the merest mention of the progress made in the last thirty years in maternity and child welfare—probably the best example that could have been given of the coördination of municipal and voluntary effort—and in the control of tuberculosis and venereal disease. Any space needed for this purpose could have been secured by curtailing the account of the national health insurance system, which has only a remote connexion with municipal progress.

The book leaves a profound impression on the reader of the range of responsibility now undertaken by the local authorities of this country. Modern advances in science lead to continual additions to their duties, and there is hardly a year in which some

new field of activity does not begin to be explored. It is not surprising that the old local government areas have become unsuited to the new needs, and that drastic readjustments of structure to function are widely regarded as necessary. Those who wish for authoritative guidance on these and other problems of local government—problems that directly affect the daily lives of all of us—cannot do better than study this important book.

No Mean City: A Story of the Glasgow Slums

By ALEXANDER MCARTHUR and H. KINGSLEY LONG. London: Longmans, Green and Co., Ltd. 1935. Pp. 324. 7*s*. 6*d*.

THIS book is based on the unpublished novels and notebooks of Mr. McArthur, an unemployed Scottish baker who was born in the poorer part of Glasgow and has lived there all his life. The material has been put into its present form by Mr. Kingsley Long, a London journalist. It covers the period from 1921 to 1930, and the authors believe they have drawn an unexaggerated picture of conditions in the tenements and of life amongst the gangster element of the worst of the slums. If the book is horrible, and it is, that is because the reality of extreme poverty and the a-morality which it engenders is itself horrible. The book may come as a shock to those who dislike plain speaking about the facts of slum life and would prefer to have the evil thing covered up and hidden out of sight, but it is only the realisation of what the slums are which will rouse public opinion to the pitch of getting rid of them; and this book is to be welcomed by all who care for the better housing of the people.

Forensic Chemistry and Scientific Criminal Investigation

Third edition. By A. LUCAS, O.B.E., F.I.C., formerly Director, Chemical Department, Egypt; Fellow of the Chemical Society; Member of the Society of Public Analysts; Member of the Medico-Legal Society. London: Edward Arnold and Co. 1935. Pp. 376. 18*s*.

IT is refreshing after a surfeit of works on the chemistry of blood and urine to meet a book on legal chemistry, a subject of growing importance in the courts (see p. 1013). Mr. Lucas writes for the chemist who is concerned with the investigation of crime. The list of subjects covered in his pages varies from the familiar blood stains to the detection of counterfeit coins and of robbery from letters and parcels, and at first sight one would imagine that chemistry had very little to do with some of the topics mentioned. But the author, clearly a man of very wide practical experience, doubtless has good reasons for including all the material here collected though the minute detail with which certain simple operations are described, notably the mixing of plaster-of-Paris in the chapter dealing with foot-prints, will certainly weary some of his readers.

It is quite clear that, in addition to a knowledge of chemistry, anyone specialising in this kind of work would have to become a detective of no mean ability, and one shudders to think what would happen to innocent and guilty alike if the instructions were followed by a person who was less experienced in methods of detection than in methods of the laboratory. The work will prove valuable to anyone engaged in this special subject, and the more general student of chemistry will find much to interest him in its pages.

Gray's Anatomy

Twenty-sixth edition. Edited by T. B. JOHNSTON, M.B., Ch.B., Professor of Anatomy in University of London, Guy's Hospital Medical School. London: Longmans Green and Co., Ltd. 1935. Pp. 1516. 42*s*.

THE appearance of the new edition of "Gray" has been awaited with interest, because it was known that it would be written throughout in the new (British) terminology, and that certain changes would be incorporated in it. The volume now to hand is a magnificent achievement—a book which is not only profitable but pleasurable to read. The main changes introduced (after nomenclature) have to do with osteology, which section, it is announced, has been largely rewritten and rearranged in different types so that the value of the section for junior students might be increased and the modern method of teaching supported. It is disturbing to think that a great text-book should be swayed by pure utilitarianism, or should take account of the babblings of the uninformed, so that we turned with a little apprehension to the section concerned. Here we were at once reassured. The work has been done most carefully; if anything, the value of the description has been enhanced by the changes. We would like to see more stress laid on the sexual differences in ossification times, and none placed on the participation of the median cartilage in the growth in depth of the vomer, but beyond these small matters we found nothing which failed to please us. All concerned in the production of this work deserve congratulation.

Chirurgie de la tuberculose pulmonaire

By A. BERNOU, Médecin-directeur du Sanatorium des Fougerays à Châteaubriant; and H. FRUCHAUD, Membre correspondant de la Société Nationale de Chirurgie. Paris: G. Doin et Cie. 1935. Pp. 589. Fr.120.

THE divergence of opinion that exists on the indications for and the technique of the various operations for pulmonary and pleural tuberculosis is well exemplified in this latest contribution from France. The ideal method for collapsing the lung by thoracoplasty has not yet been discovered: the search continues for the technique which will give the most efficient collapse with the lowest mortality. In this book the authors quote freely views of many authorities (chiefly French), and discuss all the possible combinations of the different methods of collapse therapy, without, however, having arrived at any clearly defined generalisations. The result is a book of considerable size with such a wealth of information that the reader is left somewhat bewildered, and the seeker for a guiding hand would find it difficult to pick out principles to which the authors hold firmly. The absence of an index does not make things easier. In the section dealing with phrenicectomy, the short paragraphs summarising the authors' ideas about the indications for this operation, based on personal experience of 114 cases, are somewhat at variance with generally accepted views. The balance of the book is curiously uneven; whilst no less than 26 pages are devoted to the anatomy of the posterior scapular artery, the indications for a total thoracoplasty are dismissed in two or three pages. The numerous illustrations are well executed and most informative.

"Why Marry?"

By SYBIL NEVILLE-ROLFE. London: Faber and Faber Ltd. 1935. Pp. 160. 3*s*. 6*d*.

THERE is no subject more difficult to regard impartially than sexual morality. The bulk of what is written falls into two general classes, depending upon whether the writer regards marriage as a sacrament or as a social convenience with biological implications. The book under review is a hybrid between these two classes. Its author is the able secretary of the British Social Hygiene Council, an organisation primarily aiming at the suppression of venereal diseases. She professes to approach the problem of marriage in the objective spirit of scientific inquiry; but the reader cannot avoid the impression that Mrs. Neville-Rolfe's attitude is unconsciously coloured by her daily work. The various problems dealt with—pre-marital adventures, divorce, the honeymoon, &c.—are in fact approached, not in the detached spirit of the investigator, but rather in that of the moral propagandist who knows how to select her facts to support her doctrine. The original material contained in the book is mainly composed of extracts from letters which the author has received. Some of these are surprisingly naive. The general thesis of the book is that indulgence in sexual activity outside of marriage is the expression of mental subnormality, abnormality, emotional juvenility, or failure of psychological integration.

British Journal of Surgery

THE October issue (Vol. XXIII., No. 90) contains the following papers:—

Traumatic Hæmangiomatous Tumours of Skeletal Muscle, by ROBERT MAILER (Glasgow). A total of 256 recorded cases are reviewed and a case is reported in which the traumatic origin seemed certain. The lack of capsulation and the progressive enlargement are explained as arising from the repeated traumata of muscular contraction.

Two Cases of Hæmangiomata of Voluntary Muscle, by E. N. MACDERMOTT (Galway). The calf muscles and the erector spinæ were affected. The rarity of correct pre-operative diagnosis and the local malignancy of an otherwise benign tumour are commented upon.

The History of Plaster-of-Paris Technique in the Treatment of Fractures, by J. K. MUNRO (Singapore). The evolution of weight-bearing splints is traced from the stiffened bandages used in the time of Hippocrates. The advantages of early function are discussed.

Hæmorrhage per Rectum as an Indication of Disease in Meckel's Diverticulum, by JUDSON T. CHESTERMAN (Sheffield). The typical syndrome is sudden rectal hæmorrhage in a patient 5–15 years of age, the cause being unexplained by sigmoidoscopy or blood examination. Abdominal colic may precede or accompany the bleeding. Four cases are described.

Intussusception of Jejunum into Stomach through a Gastro-enterostomy Stoma, by J. A. MUNRO CAMERON and W. DOUGLAS MACFARLANE (Glasgow). The accident occurred six years after operation as an acute surgical crisis, and proved fatal within 24 hours.

A Further Note on the Development of Cysts in Connexion with the Semilunar Cartilages of the Knee-joint, by ROBERT OLLERENSHAW (Manchester). The experience gained by operation on a further 20 cases is summarised. One case is reported of a cyst projecting towards the centre of the joint.

Angioma of the Kidney: Report of a Case, with an analysis of 26 previously reported cases, by R. H. JOCELYN SWAN and HAROLD BALME (London). Symptomless hæmaturia is the main feature. Nephrectomy is the treatment advised in most cases.

Thrombosis following Strain, by R. H. O. B. ROBINSON (London). Two cases are reported, in both of which the thoraco-epigastric artery appeared as a thickened and tender cord, as a result of thrombosis.

The Late Results of Operations on the Biliary Tract in 359 Cases, with Cholecystographic Studies in 18, by JAMES H. SAINT (Newcastle). The operations were performed between 1907 and 1922. Cholecystectomy gave a greater proportion of good results than did cholecystostomy; and drainage of the common duct was particularly successful. Cancer of the gall-bladder was not an ultimate cause of death in any case.

Traumatic Rupture of the Congenital Solitary Kidney, by J. R. H. TURTON and J. C. F. LLOYD WILLIAMSON (Brighton). A case is described. The means is discussed of obviating nephrectomy in such cases.

Squamous-cell Carcinoma of the Renal Pelvis: Report of a Case, by MAURICE SILVERSTONE (Birkenhead). Two types are recognised: one soon involving the kidney substance, the other producing hydronephrosis.

Sacro-coccygeal Cysts and Tumours, by R. W. RAVEN (London). Teratomata are regarded as malformations. The origin of dermoids, of cysts of the post-anal gut, and of cysts of meningeal origin is described and illustrated.

Pylephlebitis complicating Appendicitis and its Treatment by Ligature of the Mesenteric Veins, by A. M. STEWART-WALLACE (London). Case with recovery. The diagnostic importance of post-operative rigors is emphasised.

Intestinal Obstruction by Gall-stones, by C. P. G. WAKELEY and F. W. WILLWAY (London). The history is reported of 11 cases, all treated by operation. The practical importance of double obstruction is pointed out.

Lymphatic Spread in Cancer of the Rectum, by W. B. GABRIEL, CUTHBERT DUKES, and H. J. R. BUSSEY (London). A hundred operation specimens have been examined and the findings are discussed. Metastases were discovered in 62 per cent., confined, in half the cases, to three glands or fewer.

The Rôle of Sympathectomy in the Treatment of Peripheral Vascular Disease, by R. I. HARRIS (Toronto). Results obtained in the last four years by operation on 24 cases.

The Peripheral Nervous System, by H. H. WOOLLARD (London). A practical account of the distribution to the limbs and viscera of the various components of the sympathetic and pelvic nerves. Appended is a brief résumé of Dale's findings on the intermediate function of acetylcholine and adrenaline.

The Results of Sympathectomy: An Analysis of the Cases Reported by Fellows of the Association of Surgeons, by J. PATERSON ROSS. The value of the operation is examined in disorders of the circulation, in Hirschsprung's disease, in intestinal stasis, and in renal pain and causalgia. The possibility of consequent disabilities is assessed.

Central Control of the Sympathetic Nervous System, by JOHN BEATTIE (London). An account of the functional significance of the sympathetic and central connexions of the hypothalamus as revealed by recent experimental work.

The Technique of Sympathectomy, by E. D. TELFORD (Manchester). Attention is drawn to the importance of the essential automatism of plain muscle, as partly explaining the tendency to gradual deterioration of immediate good results; and to the variations in the anatomy of the autonomic nervous system. Causes of failure are related to possible errors in technique.

The Effects of Obstruction of the Urinary Tract, and the Effect of Experimental Interference with the Blood-supply of the Kidneys, with particular reference to the Formation of Stones. Two papers by J. GRAY from the Henry Lester Institute, Shanghai. The results obtained in rabbits show that the factors favouring the formation of stones are damage to the epithelium of the pelvis, either by partial obstruction or by vascular interference insufficient to damage the kidney seriously; a dietetic imbalance in the proportion of calcium and phosphorus; and excess of vitamin D in the diet. The stones form around a nucleus of epithelial debris in the cavity of the pelvis, in the presence of an increase of the calcium content of the kidney.

MEMOIRS OF A CAMP FOLLOWER. By PHILIP GOSSE.—This book, which was given favourable notice in THE LANCET (1934, i., 585) on its first appearance, has now been issued by Messrs. Longmans Green and Co., Ltd., London, at 5*s*.

THE LANCET

LONDON: SATURDAY, NOVEMBER 2, 1935

THE INDEPENDENT MIDWIFE

ABOUT two years ago a council was formed under the chairmanship of Dr. WATTS EDEN to look into the efficiency of the midwifery service in this country and to consider how it is affected by the ability of midwives to earn a livelihood. This joint council was representative in high degree of the professional bodies competent to judge about the problems of childbirth and their solution; it was asked to prepare a detailed scheme for the enlistment of midwives in an organised service, suited to the needs of each district, and leaving the parturient woman free to choose her own attendant; and its report when it was presented last February carried much weight. The council was unanimous in its findings that domiciliary midwifery should continue to form the basis of the maternity service, that a certified midwife should be present at every childbirth, and that the status and remuneration of midwives must be improved. But it went further than this and, with practical unanimity, recommended the establishment of a salaried service of midwives, with the same status as health visitors, under the control of the appropriate local authority. Such a scheme might absorb about 4500 midwives who had not previously been so employed. Obviously it could not include all midwives now in practice, let alone those on the inflated register of the Central Midwives Board, and the council recognised that there must be compensation of those not absorbed in the scheme for the loss of their practice. Six months later the London County Council approved the proposal to establish a salaried service, but Mr. SOMERVILLE HASTINGS, on behalf of the hospitals committee, stated that he was unable to accept the principle of compensation from the rates. It was estimated that 158 midwives would be required by the L.C.C. and several times this number at present notify their intention of doing some midwifery in the county. There has been some talk of a draft Bill for the establishment of a national midwifery service, and proposals have been submitted to representatives of local authorities for their comment.

The crux of the problem is the question of compensation, for it is hardly likely that any scheme of salaried service will prove acceptable to organised midwives which does not include some provision for those who wish to serve and are not accepted, if not for those who are unfitted by age or infirmity. The Joint Council suggested in its report that compensation on these lines might cost no more than £200,000, but admitted that any figure could only be provisional until it was ascertained how many independent midwives are now practising. To obtain this and other information at first hand the Midwives' Institute undertook to send out a questionnaire not strictly limited to its members. The questionnaire was a searching one, asking not only for the number of cases attended in two specified years (1929 and 1934) and the fee asked, but for details of the economic background of the midwife's life. Some 8000 forms were sent out and more than half these have been returned, not only filled in but often containing corroborative information. Lady FORBER, who will still be better known to many of our readers as Dr. JANET LANE-CLAYPON, offered to analyse the replies for the Institute, and she has embodied the result of her analysis in the Fynes-Clinton lecture delivered at the Institute on Thursday of last week. Lady FORBER found herself unable to examine the whole material in time for this lecture, and she therefore confined her study to three counties, Yorkshire, Durham, and Hampshire, and a part of Lancashire. The analysis relates strictly to independent midwives, excluding those who run nursing-homes without district practice, and maternity nurses who only register as a safeguard. At least one-half of all the independent midwives in the areas considered replied to the questions and the information obtained from them is sufficiently surprising. It will, for instance, be news to most people that the total number of married midwives is greatly in excess of either widowed or single; rather over 10 per cent. of midwives in the sample analysed are over 60 years of age, and many of them have larger practices than the younger women. Few enter practice under the age of 30, and most of these are young married women. The older women have mostly been in practice for a great part of their lives and continue to work as long as they can. Equally unexpected is the fact that in the interval between 1929 and 1934 there has been an increase (Hampshire excepted) in the number of cases attended by independent midwives; but the increase in the number of midwives practising is larger still, so that there is a fall in the average number of cases taken. Of the 562 midwives in independent practice in the areas studied who made returns, half took less than 50 cases in the year, only one out of five had over 100 cases. Fees vary in different areas; in some the charge for any confinement is 42*s*., in others 35*s*. for a primipara and 30*s*. for a multipara. Lady FORBER concludes that a third of all independent midwives cannot be earning more than £50 a year, and probably considerably less, while only one in seven earns £200 or more. Few obtain their whole fees; a midwife tends to be the last to be paid. Except for a small minority the practice of the independent midwife does not afford a living wage, and the reasonable livelihood of the minority is obtained only by attendance on an unreasonable number of cases.

That is the position, and, as Lady FORBER remarked, the facts need to be faced, for the independence of the midwife can hardly be said to exist if she is unable to secure a livelihood as a midwife. Many factors contribute to the difficulty of the position. There are clearly too many women training as midwives with little or no intention to earn their livelihood as such.

Those who take the diploma of the Central Midwives Board as the final touch of a nurse's training or as a branch of social service are entitled to attend confinements if they register with the local supervising authority and to compete with the professional midwife. Surely, said Lady FORBER, a more specialised training should be required for those who profess midwifery than those who take the S.C.M. qualification as a side-show. Something might be done to increase the number of cases available for midwives. It is the policy of the Joint Council that a midwife should be available at every childbirth, having behind her a doctor who has seen the patient beforehand and is ready to come if required. This proposal would finally eliminate the handy woman. In a few places she seems already to have disappeared but in others the many complaints in the schedules testify to her continued activities. Midwives also complain of the loss of practice owing to women who do not actually require in-patient care being attracted to hospital by the low fees charged. At some of these hospitals money is being expended by the taxpayer for the training of midwives in a profession already overloaded and at the expense of its practising members. Apparently, too, midwives seldom get paid for miscarriages or abortions, and as Lady FORBER remarks, all abortions are abnormalities. They frequently give rise to trouble at the time and some midwives report that the only maternal deaths in their practice have followed a recent abortion or a previous pregnancy which ended before term. The problem of the domiciliary midwifery service is indeed complex. The independent midwife, while recognised by Statute, is squeezed from all sides; work has been added for which she receives no extra pay, while the maternity benefit which is obtained on her signature is often used for other purposes; she often fails to get a reasonable fee for attendance on necessitous mothers. These are all matters which claim immediate attention, for even if a salaried service is coming it must take time before it gets into working order, and it can hardly be securely based except on the experience of a fair and free midwifery practice.

ELECTRIC SHOCK

THE first recorded death from electricity was that of a stage carpenter, who in 1879 touched the switch of a dynamo in a Lyons theatre. Since then the use of electricity for industrial and domestic purposes has increased rapidly, and there have been rises in the death- and accident-rates; though fortunately, as Dr. CRITCHLEY told the Medical Society last Monday, conditions in this country have been made relatively much safer. The prevention of electrical accidents comes within the province of the electrical engineer, but to the medical profession the study of the effects of electricity on the human body is one which presents many complex and contradictory features. It is impossible, in the present state of our knowledge, to predict with certainty what will happen when a man receives an electric shock of, say, 250 volts A.C. One man will die, but another will be none the worse for the experience. Death has been known to be caused by a current of 65 volts A.C., but again a man has received a shock of 80,000 volts A.C. with little or no effect. It is known also that, at medium voltages, alternating currents are more dangerous than direct currents, especially if they pass through the thorax. At very high voltages, however, direct currents seem to be more dangerous than the alternating variety. The explanation of these apparently contradictory facts lies in a combination of electrical and physiological factors, so that in any satisfactory investigation of the features of electric shock, coöperation between electrical and medical experts is desirable. We publish on p. 1021 a contribution by Captain C. W. HUME on electric stimulation in relation to subjective phenomena in electric shock. He comes to the conclusion that an electric shock which does not immediately produce unconsciousness is capable of causing severe pain with temporary paresis of the speech mechanism. The fact that the victim may be apparently unconscious, yet retain perception, makes him dissatisfied with the widespread use of electricity as a means of stunning animals before their slaughter, and also as an anæsthetic for veterinary operations.

JEX-BLAKE in 1913 drew attention to the differences in susceptibility to electric current shown by animals of the same and different species. In man susceptibility varies not only from person to person but also in the same person from moment to moment, owing to the changing conductivity of the human organism. JEX-BLAKE thought that death from electric shock in man is almost always due to a non-reversible ventricular fibrillation, but with very high voltages death might be caused by asphyxia following paralysis of the respiratory centre. HILARY LONG[1] in a review of recent observations on the subject comes to the conclusion that death is rarely due to ventricular fibrillation. The work of LANGWORTHY, PANZE, and JELLINEK has shown that the main effect of electric shock is on the central nervous system, particularly the respiratory centre. The post-mortem changes are usually those of asphyxia, though lesions in the nervous system are sometimes found, especially when death has been caused by the higher voltages. It is important to understand the cause of death in such accidents, for otherwise it is hard to say what treatment should be adopted in cases not immediately fatal. The Viennese school, of which JELLINEK is the leader, maintains that death from electric shock is due sometimes to a combined cerebral and pulmonary congestion, occasionally to asphyxia, and very rarely to a sudden stoppage of the heart. MELISSINOS,[2] of Athens, who like LONG has studied the subject with JELLINEK, states that the treatment consists in artificial respiration and lumbar puncture. He recalls that JELLINEK has reported cases in which artificial respiration had no effect until lumbar puncture was done to release the

[1] Long, M. H. E.: Med. Press and Circular, August 21st, 1935, p. 150, and August 28th, p. 172.
[2] Melissinos: Echo méd. du Nord., Sept. 812, 1935, p. 459.

pressure on the central nervous system and chiefly on the respiratory centre. He suggests that the cerebral and pulmonary congestion found in electric shock is secondary to the direct action of the current on the vasomotor system. It is known that electric currents in the body travel mainly along the blood-vessels. KOUWENHOVEN, HOOKER, and LANGWORTHY [3] have shown experimentally that it also passes through the cerebro-spinal fluid, which has a lower resistance than blood. The statement by JEX-BLAKE that a heart in ventricular fibrillation following electric shock cannot revert to normal rhythm has since been questioned; indeed, LONG describes an experiment in which JELLINEK showed that ventricular fibrillation induced by an electric current is a reversible process. He gave a monkey a shock of 110 volts A.C., one electrode being placed on the right side of the chest and the other on the left high. Immediately after the passage of the current an electrocardiogram showed that the heart had gone into ventricular fibrillation. The condition persisted for 19½ seconds after which the heart spontaneously reverted to its normal rhythm. LANGWORTHY has found that the hearts of rats likewise recover their normal rhythm spontaneously after being thrown into ventricular fibrillation by electric currents. Recently JOSEPHTHAL [4] has recorded a case of post-diphtheritic ventricular fibrillation with recovery, and SCHWARTZ [5] a case in which a patient had a number of attacks of unconsciousness associated with transient ventricular fibrillation. It seems therefore that ventricular fibrillation is not necessarily non-reversible or fatal.

Emotional or psychic factors, as HILARY LONG points out, might explain to some extent the variation of responses obtained in electric shock. A man's tolerance of electric currents will depend partly on external factors such as the presence of moisture, and also on his mental state at the time of the accident. If he is exhausted or emotionally disturbed the effect of the electric current will be more severe. Again, if a man is expecting an electric shock, it will not affect him as much as if it came as a complete surprise—a fact which may explain why many electricians seem to develop an immunity against electric currents of medium strength.

SURGERY OF THE SYMPATHETIC

DURING the past ten years so much thought has been devoted to the surgery of the sympathetic nervous system that it is surprising to find little agreement about the precise indications for operation and about the significance of many details in surgical technique. The conceptions of the physiology of the autonomic system upon which surgery has been based have altered considerably during this period, and those who have attempted to study its functions by observing the effects of sympathectomy in man have been much handicapped by the presence of permanent structural changes in the denervated organs which interfere with their normal activity. Those who planned the operations were influenced by the ideas, gleaned from animal experiment, that sympathetic impulses were exactly antagonised by those of the parasympathetic nerves, and that the process of regeneration after excision of a portion of a sympathetic trunk was so active that a considerable gap could be bridged by the proliferating nerve-fibres. It is now realised that the interpretation of such experiments may be confused by the combination of sympathetic and parasympathetic fibres in the same nerve trunk; and, further, that the motor or inhibitory function of certain nerves cannot be deduced merely from their anatomical source and their morphological characters. The researches of DALE and his co-workers have shown that many of the cerebro-spinal and all the autonomic nerves produce their effects through the intermediation of chemical substances, and it must be noted that though adrenaline is formed at most of the sympathetic nerve-endings, acetylcholine, which mediates all the parasympathetic impulses, is the substance produced at the sympathetic endings in sweat-glands and at some of those in the gut. The time has therefore come to review our surgical experience in the light of these researches, and with the knowledge that regeneration of sympathetic fibres after excision is now believed to be a negligible factor.

This attitude is reflected in a series of articles in the current number of the *British Journal of Surgery*, reviewed on p. 1008. The conservatism of British surgeons is shown by the fact that in this country sympathectomy is confined almost exclusively to lumbar and cervicothoracic ganglionectomy, presacral neurectomy, and perivascular operations on the mesenteric and renal arteries. The indications also are limited to peripheral vascular disease, intestinal stasis, and the relief of visceral pain, and little or nothing is heard of sympathectomy for epilepsy, neuralgia, retinitis pigmentosa, spastic paralysis, asthma, tachycardia, and hypertension. Surgeons are learning to rely more and more upon preoperative tests in selecting the cases suitable for operation, and reluctance to embark upon the treatment of these conditions may be attributed partly to the difficulty or impossibility of applying such tests to them, and partly to the unconvincing nature of reports from clinics abroad. The value of the preliminary estimation of the degree of vaso-spasm which may accompany any form of peripheral vascular disease is demonstrated by R. I. HARRIS of Toronto, whose figures show how closely the rise of temperature following temporary block of the sympathetic nerves with novocain is related to the improvement in the circulation after sympathectomy, though he is careful to point out that the result of permanent denervation is often more gratifying than the anæsthetic test might lead one to expect.

Turning to the consideration of surgical technique, it is remarkable that surgeons are still undecided upon the extent of the excision necessary to denervate a given organ. In the case of the

[3] Kouwenhoven, W. B., Hooker, D. R., and Langworthy, O. R.: Amer. Jour. Physiol., 1932, c., 344.
[4] Josephthal, F.: Wien. Arch. f. inn. Med., Dec. 10th, 1934, p. 15.
[5] Schwartz, S. P.: Arch. Internal Med., February, 1932, p. 282.

œsophagus and the colon this is due to the incompleteness of our knowledge of their nerve-supply; but in the case of the limbs it is attributable to the conflicting evidence of physiological experiment and surgical experience regarding the relative values of preganglionic and postganglionic sections. WHITE'S experiments[1] seem to show that removal of the ganglion cells renders the denervated vessels over-sensitive to the action of circulating adrenaline, and some clinicians have seized upon these observations to explain why the results of lumbar ganglionectomy, which is a preganglionic section for the foot, are on the whole so much better than those of cervicothoracic ganglionectomy, which is of course postganglionic for the hand. TELFORD suggests dividing the thoracic trunk below the third ganglion in order to achieve preganglionic section of the arm supply, and points out that this operation has the added advantage of avoiding the unwanted Horner's syndrome, which is inevitable after excision of the stellate ganglion. The late results of this operation will be awaited with much interest.

In attempting to explain the recurrence of symptoms after sympathectomy regeneration of nerve tissue after a properly conducted operation may be left out of account, and it is probable that the secret lies in the automatic activity which the organs innervated by the sympathetic all seem to possess. The loss of sympathetic control may sometimes render them more susceptible to stimulation by adrenaline, but there is another factor which must not be forgotten. The analysis of the results of sympathectomy prepared for the Association of Surgeons by PATERSON ROSS shows that the success of these operations largely depends on the severity of the disease for which the operation has been performed. This is especially noticeable in Raynaud's disease, in thrombo-angiitis obliterans, and in the cold blue legs of poliomyelitis and erythrocyanosis, and it may be generally accepted that sympathectomy is of greatest value in the early stages of disease, when denervation may help to rectify a disorder in the function of an organ which has not yet suffered any considerable alteration in its structure. Recurrence of symptoms after operation is not infrequently due to such structural changes, signs of which again manifest themselves after the earliest paralytic phenomena of denervation have passed off. Judgment should not be passed upon the value of sympathectomy without giving careful consideration to the nature of the disease for which it is practised. There is no doubt that the results are often disappointing, but this is the fault not of the operation but of the surgeon who has failed to take sufficient care in selecting the cases suitable for sympathectomy.

[1] White, James C.: The Autonomic Nervous System, 1935, p. 92.

ANNOTATIONS

THE RIGHT TO DIE

EARLY in December a meeting is to be held at the house of the Royal Society of Medicine to inaugurate a public society, to be known as The Voluntary Euthanasia (Easy Death) Legalisation Society, which has been formed under the presidency of Lord Moynihan with Mr. C. J. Bond as chairman of the executive committee and Dr. Killick Millard as hon. secretary. The society owes its origin to Dr. Millard, who three years ago devoted to this subject the whole of his presidential address to the Society of Medical Officers of Health, submitting for their consideration the draft of a Parliamentary Bill to legalise the painless killing, at their own wish, of persons suffering from incurable, fatal, and painful disease. This draft Bill has since been revised by high legal authority without substantial modification and is now ready to be introduced by Lord Moynihan in the House of Lords at some suitable time. To meet possible objections on religious grounds, a statement that voluntary euthanasia as proposed by this society is not contrary to the principles of Christianity has been drawn up and signed by a number of representative anglican and nonconformist ministers. The proposal too is regarded as gaining support from what Sir (Saint) Thomas More wrote in "Utopia" about euthanasia, although he did not actually use the word. Copies of the draft Bill, price 6*d*., can be obtained from Dr. Millard at The Gilroes, Leicester.

WHITE BILE

THE discovery of colourless contents in the gall-bladder or bile-ducts is unusual, and the surgeon may find it hard to assess its significance. Where the gall-bladder is completely isolated the assumption will be that its wall has absorbed the bile-pigments, and examination of the contents will show that the bile salts, too, have been absorbed. The fluid may be clear or turbid, and the condition may be the outcome of obstruction of the cystic duct either by tumour or by calculus. That a somewhat similar condition may arise in the isolated bile-ducts was demonstrated by a case reported last year by Mr. Norman Lake.[1] This was one in which the lower ends of the common bile-duct and of the cystic duct were simultaneously blocked by new growth, and the result was enormous distension of the bile-ducts, to the calibre of the jejunum, their content being as colourless as cerebro-spinal fluid. E. Melchior[2] now points out that there is a distinction between the case in which the liver and ducts are still excreting bile of normal colour—which is later decolorised—and that in which there is a failure, primary or secondary, of the liver cells. Quite often this failure is due to back pressure through blockage of the ducts, and drainage of the biliary system may restore the normal liver function and relieve the associated jaundice. In other cases the hepatic failure appears to be primary, without biliary obstruction. Melchior thinks, however, that there is no essential difference between the two classes of case, once the damage to the liver cells has gone far enough. Most probably, he believes, infection plays a considerable part in the causation, although he cites cases in which bacteria could not be found. His advice is that when there is biliary obstruction and the common bile-duct is found to be distended with clear colourless, or milky fluid, the prognosis should be guarded, especially if the obstruction is suspected to be of

[1] THE LANCET, 1934, ii., 753.
[2] Presse méd., August 21st, 1935, p. 1316.

long duration. After operation the reappearance of pigment in the bile draining through the tube is of course a good sign, but final failure of the liver occurred in some of his cases, with reappearance of colourless "bile." Sometimes the flow of fluid was excessive, a condition which Melchior terms "hypercholorrhée" being established. Two litres or more of colourless fluid might drain in the day, and the patient suffer accordingly from the symptoms of rapid fluid loss, sometimes with widespread hæmorrhages (visceral and subcutaneous) in addition. The liver is apt to be tense, enlarged, and firm, and its surface is spotted with tiny white channels looking somewhat like abscesses. These are the small hepatic ducts distended with the same white fluid that appears in the main ducts.

THE FORENSIC CHEMIST

MINDFUL of the debt which legal medicine owes to chemistry, the Medico-Legal Society have elected Mr. C. A. Mitchell, D.Sc., to be their president. In the address delivered to them on Oct. 24th he was able to show how wide had been the application of chemistry in the courts during the last fifty years. In the trial of Palmer, the Rugeley murderer, in 1856 the chemical evidence of strychnine in the body of Cook was discredited by the medical evidence adduced for the defence. Nowadays the chemical evidence is often more decisive than the clinical findings, and many branches of evidence are now exclusively within the province of the chemist. In questions concerning the adulteration of food and drugs the public analyst has won an independent and highly specialised position, and there are now more non-medical than medical toxicologists available to assist the police. Only the chemist has been able to explode such medical fallacies as the belief that a drunkard may die from spontaneous combustion, or that a body buried in quicklime is destroyed. Chemical evidence, by showing that fire could start by the accidental mixing of such common drugs as permanganate and glycerin, induced the Court of Appeal to hold that the fires in Kingstown at the time of the Jamaica earthquake in 1907 started as the result of the earthquake and not before it. The chemist is often called upon to identify the wood from which charcoal is made by examining its microscopical structure; to decipher writing on burnt paper; or to decide whether material is damaged by salt or by fresh water. By identifying the dust on the clothes of an Egyptian suspect with the fireproof lining of a broken safe, a chemist of Cairo brought a burglar to justice, and a coiner was convicted on the evidence of a single particle of alloy found on his file and identical with the metal in counterfeit coins which he was charged with making. The chemist can often pronounce on the genuineness or otherwise of a document, for if a document bearing a date earlier than 1861 is printed on esparto paper it is spurious, as is a document purporting to be printed on wood-pulp paper before 1874. The age of ink in writing can be ascertained with precision by testing the surrounding paper and estimating the extent to which the soluble salts of sulphur and chlorine have permeated it. For periods over two years the chemist uses the older method of studying the formation of the resinous deposit, and the difference in age between two sets of writing on the same paper can be distinguished if one is less than ten or twelve years old. Dr. Mitchell, in these and other examples, brought forward ample evidence why the forensic chemist should be recognised as an independent ally of the medico-legal expert and why, although he is neither a doctor nor a lawyer, he is certainly not a layman in the medico-legal world.

CARCINOMA TELANGIECTATICUM

THE clinical appearances and prognosis of cutaneous cancer are affected not only by the type of the growth, but also by the nature and plane of the cellular tissues it is invading. A spread in the lymphatic vessels, for instance, with a consequent block in lymphatic drainage will lead to exudation and local œdema of the peculiar solid type which the French have termed cancer en cuirasse, or peau d'orange. Of equal importance and interest, though less often observed, is the result of selective invasion of the cutaneous capillaries and smaller blood-vessels. Such a case, illustrated in natural colour, has lately been reported by Dr. F. Parkes Weber.[1] It concerns a woman of 48 who was operated on for carcinoma mammæ in October, 1932, and died from secondary deposits in the pleura and elsewhere in May, 1934. The illustration brings out the localisation of the skin changes in the left flank, but hardly suggests the telangiectatic changes, due, as histological examination eventually proved, to vascular involvement by carcinomatous cells. It appears that the small telangiectases are characteristic of this form of malignant invasion, and if this is so there is every reason to support Dr. Parkes Weber's argument that the name suggested by him, carcinoma telangiectaticum, should supersede that devised for similar cases by H. Küttner, of Breslau, and C. Rasch, of Copenhagen—viz., erysipelas carcinomatosum, or erysipelatoid carcinoma.

FREE FALLS IN SPACE

IT was formerly assumed that a free fall of over 100 feet produced unconsciousness or even death; but the use of the parachute, and "delayed parachute jumps" in particular, have disposed of this idea. Delay in pulling the ripcord of a parachute may be thought necessary for either of two reasons: first to avoid entanglement with the aeroplane or collision with other jumpers, and secondly in descents from extremely high altitudes. Captain H. G. Armstrong, of the United States Medical Corps, points out[2] that a jump from 30,000 feet involves the loss of the jumper's oxygen supply, and that if he opens his parachute at once he may lose consciousness or die before he gets to a level at which he will recover. He uses this as an argument in favour of a rapid "free fall" for the first few thousand feet. But while we may agree that a pilot opening his parachute at 30,000 feet, without using oxygen, would probably become partly or wholly unconscious during the first few minutes of the fall, it is generally believed in this country that in such circumstances a fit man would later recover consciousness, probably before reaching the ground. On the other hand, Armstrong's contention that in a free fall to about 20,000 feet a parachutist would retain enough consciousness to open his parachute is borne out by experiment here, provided no great effort has been entailed in getting clear of the aircraft. His suggestion that if it should be necessary to jump from an aeroplane travelling at a velocity of the order of 360 miles an hour the pilot should not open his parachute till he has lost almost all horizontal velocity is sound

[1] Internat. Clin., 1935, vol. iii., p. 145.
[2] Jour. Amer. Med. Assoc., Oct. 5th, 1935, p. 1107.

enough in theory; but the practical difficulties in the way of making such a jump are considerable, especially as the circumstances which would make it necessary would sometimes make it almost impossible to climb out of the aircraft without serious injury. In such a case, if he still retained enough control of his machine, he might do better to reduce the horizontal component of his speed by a vertical zoom, which would at least reduce the risk of breaking his neck on attempting to climb out. Once his speed had been reduced to that of his terminal velocity for a free fall at the height at which he is flying (about 190 miles an hour at 30,000 feet) the risk of opening the parachute would be much the same at whatever height he opened it; since the reduction in air density at such a height, which raises his terminal velocity from 119 miles an hour at ground level to about 190 miles an hour, would cause the pull of the parachute to be proportionately less than it would be near the ground, these two changes cancelling one another.

Captain Armstrong has himself made a parachute descent from 2200 feet, and describes his sensations before pulling the ripcord. He felt free from fear and excitement as soon as the machine was cleared; he had some loss of auditory perception but consciousness was unclouded. The only recognisable motion during the first two seconds was slow rotation of the body; during the third and fourth second, with the eyes still closed, even this rotation ceased and the only feeling was that of being suspended in mid air; not until the eyes were opened was a definite sensation of falling experienced. His physical sensations were almost nil. There was no nausea nor vertigo; breathing was regular and unhurried; no abnormalities were noted in the cardiovascular system; the eyes though unprotected were not irritated and vision was normal. The only physical sensation consisted of a very gentle evenly distributed generalised superficial pressure on the downward surface of the body. These experiences in general accord with those described by parachutists like the late John Tranum, who in May, 1933, made the world's record delayed parachute jump from a height of 21,000 feet. On this occasion Tranum used a small supply of oxygen and had previously undergone a chamber test in which the rate of pressure change in such a fall was exactly reproduced, in order to see whether he could sufficiently equalise the pressure on both sides of his tympanic membrane to avoid serious trouble, which he found he was able to do without difficulty. Tranum mentioned the same sensation of tumbling head over heels for about a mile and then gently floating, with his head downwards and the body at an angle of about 45°, and slowly rotating about his longitudinal axis; he said he could control this rotation by merely moving one hand out from his body to act as an air-brake. He too had no sensation of posture without the aid of vision; this is only to be expected, for in a free fall, where the acceleration due to gravity is affecting the whole body except for the retardation due to friction, the fluid in the semicircular canals, without losing any of its mass, loses nearly all its weight and so gives no indication of posture; and since no part of the body is resting on any material thing there is no information to be gained by muscle sense. The loss of auditory acuity may be either local, through the altered pressure on the tympanic membrane, or central; or it may perhaps have been the ordinary deafness which many people experience when exposed to the noise of an aircraft engine.

Armstrong estimates that without the use of oxygen anoxæmia begins to develop in human beings at about 10,000 feet, producing dyspnœa at 15,000 feet, unconsciousness at about 22,000, and death at about 27,000 feet. Naturally this can be no more than a rough estimate, since the condition is continuously progressive in relation to both height and time. But we doubt whether dyspnœa occurs in fit pilots at 15,000 feet unless they do an unusual amount of muscular work.

PATHOGENIC ACTINOMYCETES

In the past the actinomyces group has been in a sad way, falling, as it were, between two stools. This group of infective micro-organisms lies on the borderline between the true fungi and the bacteria which multiply by fission. It does not yield easily to orthodox bacteriological methods, and has been neglected by mycologists. Consequently the descriptions of strains that have been isolated are often poor and ambiguous, and the resulting confusion has inspired ambitious rearrangements and renamings of the group which have led to still greater confusion. Recently the need for a reliable system of classification has been aggravated by the description of actinomyces isolated from conditions other than frank mycetomata. The pathogenicity of strains from the latter, though still presumptive, is fairly well established. There are a number of strains, however, whose connexion with the lesion in which they are found is less demonstrable. Among such strains are those isolated by Dr. A. G. Gibson [1] from the enlarged spleens of sufferers from splenic anæmia, Banti's disease, and acholuric jaundice. A few years ago Dr. Gibson sought assistance from the Medical Research Council in a systematic examination of these strains, and at the same time presented to the National Collection of Type Cultures, maintained by the Council at the Lister Institute, a fully documented series of the organisms. These strains formed the nucleus of the material studied, in parallel with another and much larger series from other sources, by Miss Dagny Erikson,[2] who has now published a report on her systematic investigations. In all 50 strains were examined by her, and on the basis of the type of growth-mass have been divided into two main groups and further subdivided according to pigment production, proteolytic powers, and their growth in and on a variety of culture media. By these means Miss Erikson has regrouped several known strains and created 15 new species. She fails to confirm the extreme degree of variability claimed for the group by some observers, and finds that though individual characteristics vary with the culture medium used, there is a sufficiently stable aggregation of them to enable a species to be recognised as such. Full descriptions of the colonial and individual morphology of 25 strains are supplied, illustrated by over 100 line drawings. The value of this careful study would have been enhanced had the sizes of the organisms been explicitly stated and had terms like "large," "small," "minute," and "pinpoint" applied to colony form been translated into measurements either of modal size or of limits of variability. In all other respects Miss Erikson's report provides a most useful groundwork for future workers, both as a reference to type species and a basis of classification. More differential methods

[1] The Mycoses of the Spleen. London. 1930.
[2] The Pathogenic Aerobic Organisms of the Actinomyces Group. Medical Research Council, Special Report Series No. 203. H.M. Stationery Office. Pp. 61. 1s.

will no doubt be required. Biochemical tests have a limited use, owing to the slowness of growth and the poor fermentative power of the organisms, and advance may most reasonably be expected from the application of the methods developed by J. Tomcsik,[3] Stone and Garrod,[4] and J. T. Duncan [5] in their serological analyses of some of the lower fungi.

"NARCO-LOCAL" ANALGESIA

THE advantages which can be gained by the use of local instead of general anæsthetics for major surgical operations have more often been pointed out by continental surgeons than by those of English-speaking nations. An article, however, in the *Medical Journal of Australia* of July 6th, in which Mr. C. E. Corlette recounts his views and practice after an experience of 18 years, gives impressive support to those who recommend local analgesic methods. Corlette points out clearly the disadvantages of purely local means of obviating pain and the necessity for dealing effectively with the psychological aspect of operation and of protecting the patient both from mental anguish and from all memory of any actual pain if this is inadvertently inflicted. The essential feature of his method, apart from gentleness in operating, is the logical and reasoned employment of suitable premedication. This is carried out by divided doses, generally two, of morphia and scopolamine. The first injection is two hours before operation; most surgeons who use this premedication have erred in giving it at too short an interval beforehand. Moreover the susceptibility at different ages has been insufficiently studied. Corlette finds that a man of 20–25 years of age is between two and three times as tolerant of morphia and hyoscine as he is thirty years later. The dosage is arranged accordingly, and the article provides a table showing the routine doses from 11 to 84 years of age. In practice, of course, these figures are not rigidly followed, the experienced man taking into account the physical and mental features of the patient which he knows influence susceptibility in one direction or the other. It is certain that if a surgeon can acquire the experience and will take the necessary trouble he can achieve by "narco-local" analgesia results which it is impossible to better, if to equal, when general anæsthetics have to be relied upon.

ANONYMOUS LETTERS

LAWYERS have more direct concern with the writers of anonymous letters than have psychiatrists, but the latter can properly claim such people as subjects for their art. A few reports on the psychological aspect of this disagreeable symptom are available. In the latest of them however Dr. Karl Gross [6] shows himself cautious as to its morbid significance; he points out that not all of those who write anonymously are criminals or scoundrels or psychopaths; they may be journalists or politicians. Apart from such obvious exceptions, questionable only by the cynic, the majority of those who write anonymously do so to gratify or manifest inclinations which are part and parcel of a psychopathic disposition. Few of them do so on the grand scale of a Junius; their field is often petty, and the style appropriate to the matter; but whatever the abilities or aim of the writer, his motive is constantly to be found in thwarted desires and morbid tendencies. This does not mean that he is independent of his present milieu and driven solely by forces within himself. The violent suppression of opinion which now obtains in many countries is a manure in which these particular weeds sprout amazingly. Among the outstanding characteristics of the anonymous letter writer on which Dr. Gross remarks are obscenity and sexual attacks; the usual decencies are cast aside. Few of the writers are insane; many of them are hysterical and given to fantastic lying; others are hypomanic, compulsive, or paranoid. They may be of any age; the majority are women, and they are more prone than men to be salacious in such letters. They may persist for many years in their attentions, which are often prompted by jealousy, envy, or revenge. A craving for thrills and artistic display may be evident, and occasionally other members of the family have been induced to join in the business. The treatment of the psychopaths here in question is usually in the hands of the courts; but it would be a good thing if, in deciding it, not only the noxiousness of these people to society could be taken into account, but also the degree of their accessibility to the methods of modifying morbid trends now at the disposal of the psychiatrist.

[3] Zeit. f. Immun. Forsch., 1930, lxvi., 8.
[4] Jour. Path. and Bact., 1931, xxxiv., 429.
[5] Brit. Jour. Exper. Path., 1932, xiii., 489.
[6] Wien. klin. Woch., July 12th, 1935, p. 927.

BERI-BERI OR TREMATODE INFECTION?

THAT cysticercus infection of the brain may mimic epilepsy has been clearly shown by Major-Gen. W. P. MacArthur. A parallel discovery, made in the Philippine Islands,[1] is that the symptoms of wet or cardiac beri-beri are sometimes traceable to infection with minute trematodes of the family heterophyidæ. These parasites have been found in 9 of 108 almost consecutive autopsies at Manila, and in 6 of these the naked-eye conditions, taken with the symptoms, seemed to justify a certificate of death from cardiac beri-beri or acute dilatation of the heart. The number of heterophyid worms present in the lumen of the intestine was small, and no eggs were seen in its contents; but such examinations do not disclose the weight of infection, for if the mucosa is scraped successive collections of flukes can be made, and sections show them in the intestinal wall with little reaction around them. Further examination was made of the heart muscle of these persons, and in it were found not only at least one fluke but a number of eggs ranging from $16 \times 10\,\mu$ to $33 \times 25\,\mu$ according to the species of trematode; they lay in spaces apparently caused by rupture of muscle-fibres and containing also blood and much œdematous fluid. It is thought that the sequence was embolic blocking of capillaries by eggs from the intestine, followed by violent spasmodic contraction and breakage of the muscle-fibres. No investigation of other organs or tissues was made at the time; but if the eggs reached the coronary arteries by the circulation they must equally have reached other parts, and in that case it will be surprising if they are not found to produce in them symptoms which are at present being overlooked. In order to separate this infection from cardiac beri-beri in those countries where raw fish is eaten there is a wide and seemingly profitable field of research; but it can be no easy one if, as stated, eggs are absent from the fæces when there is infection with these particular heterophyids. The lesions must be caused by side-tracked individuals which can by no means carry on the race, but have apparently become more dangerous to man.

[1] Africa, C. M., Garcia, Eusebio Y., and de Leon, Walfrido: Jour. Philippine Islands Med. Assoc., 1935, xv., 358.

TREATMENT OF INTUSSUSCEPTION

ON another page of this issue Mr. Elliot-Smith argues persuasively in favour of a conservative attitude towards irreducible intussusception. Instead of trying to remove the mass, in part or whole, he would merely relieve the obstruction by a lateral anastomosis, and he is able to record good results from this relatively safe operation. It is interesting to learn from a monograph[1] by Gullichsen, of Helsingfors, that even more conservative measures have lately taken on a new lease of life in Scandinavian countries, chiefly because of the new possibility of controlling its course and observing its results by means of radiography. Gullichsen traces the history of the method since Olsson and Pallin published four successful cases in 1927. In one, at which he himself assisted, the barium enema was injected primarily for diagnostic purposes but proved accidentally therapeutic. A general anæsthetic is not usually necessary; the child is held firmly on the X ray table. The enema is then administered and the container is gradually raised so that the pressure of the fluid reduces the invagination. The distended ileum may mask the final few inches, and abdominal manipulation may be needed to bring it into view. The reduction should be gentle and gradual, and takes about 10–15 minutes. Violent pressure should not be used, and, if there is any doubt about success, open operation should be resorted to without delay. Gullichsen speaks of four tests of disinvagination. (1) With an incompetent ileocæcal valve, the opaque fluid can actually be seen entering the small intestine. (2) When the ileocæcal valve is competent, the smooth and regular outline of the distended cæcum is to be looked for; any irregularity of the inner border is presumptive evidence of incomplete reduction and calls for operation. (3) The calmness of the child is further proof of a return to normal. (4) Expulsion of gas after the evacuation of the opaque enema is a valuable sign of success. The objection to non-operative treatment is that it can be useful only in early cases and may lead to delay. Where operation is required and the intussusception cannot be reduced Gullichsen is on the whole in favour of rapid resection. But Mr. Elliot-Smith is certainly right in saying that this is very dangerous to young children.

THE NOBEL PRIZE FOR MEDICINE

IT is announced from Stockholm that Dr. Hans Spemann, professor of zoology at the University of Freiburg in Breisgau (Baden), has been awarded the Nobel prize for medicine. Spemann and his school have been doing fundamental work in experimental embryology since the beginning of the century. He has been concerned particularly in demonstrating the energising action of certain parts of the embryo on others: for example, the action of the optic vesicle in promoting lens formation, the organising power in the dorsal lip of the blastopore, or the self-orientating properties of the growing auditory vesicle. Such investigations led, of course, to more intricate experimentation and the formulation of more or less definite hypotheses concerning regulation of growth and the potencies of embryonic parts, whatever might be their presumptive fate ordinarily. These researches open up important questions of growth and differentiation, and have already profoundly modified our conceptions of normal and abnormal bodily processes.

[1] Gullichsen, R.: Étude sur l'Invagination Intestinale, Acta Chir. Scand., 1935, Suppl. lxxvi.

Dr. R. M. F. Picken, professor of preventive medicine in the Welsh National School of Medicine, has been appointed by the Health Organisation of the League of Nations as representative of Great Britain on an American study tour, which begins at Washington on Nov. 4th and ends in New York on Dec. 7th.

ON Tuesday, Nov. 5th, Dr. Daniel T. Davies will deliver the Bradshaw lecture on peptic ulcer at the Royal College of Physicians of London. On Nov. 7th and Nov. 12th Dr. J. D. Rolleston will give the FitzPatrick lectures, speaking on the history of the acute exanthemata. The Lloyd-Roberts lecture will take place on Nov. 14th when Dr. C. G. Seligman, F.R.S., will speak on the Roman Orient and the Far East. All the lectures will be given at 5 P.M. at the College, and members of the medical profession will be admitted on presentation of their cards.

Mr. William Adams Frost, who died on Oct. 25th at the age of 82 years, was consulting ophthalmic surgeon to St. George's Hospital and consulting surgeon to the Royal Westminster Ophthalmic Hospital. He was joint author with Brudenell Carter of a popular student's manual, and just forty years ago brought out an atlas of the fundus oculi, which was the first thing of its kind.

BRITISH POSTGRADUATE MEDICAL SCHOOL.—A refresher course for general practitioners will be held at this school from Nov. 18th to Nov. 30th. Besides members of the staff lecturers will include Mr. R. T. Payne, who will speak on the treatment of varicose veins and varicose ulcers, Dr. Alexander Joe (infectious fevers), Prof. F. J. Browne (toxæmia of pregnancy), Dr. C. W. Buckley (chronic arthritis and sciatica and lumbago), Mr. Sydney Scott (earache), Dr. H. Crichton-Miller (psychology in general practice). During the course sessions will be held at the National Hospital, Queen-square, the Royal London Ophthalmic Hospital, City-road, and the Hospital for Sick Children, Great Ormond-street. Further particulars will be found in our advertisement columns.

FELLOWSHIP OF MEDICINE AND POST-GRADUATE MEDICAL ASSOCIATION.—Arrangements have been made for the following all-day courses to be held: urology at St. Peter's Hospital (Nov. 4th to 16th); medicine, surgery, and gynæcology at the Royal Waterloo Hospital (Nov. 11th to 23rd); proctology at St. Mark's Hospital (Nov. 25th to 30th). Afternoon courses will include venereal disease at the London Lock Hospital (Nov. 18th to Dec. 14th); infants' diseases at the Infants Hospital (Nov. 25th to Dec. 7th); dermatology at the Hospital for Diseases of the Skin, Blackfriars (Nov 25th to Dec. 7th). A week-end course in gynæcology will be given at the Samaritan Free Hospital for Women on Nov. 16th and 17th, and another on chest diseases at the Brompton Hospital on Nov. 30th and Dec. 1st. A clinical and pathological course for M.R.C.P. candidates will take place at the National Temperance Hospital on Tuesday and Thursday evenings at 8 P.M. from Nov. 26th to Dec. 12th. A debate on maternal mortality will be held at the Royal Society of Medicine at 8.30 P.M. on Wednesday, Nov. 13th, when Dame Janet Campbell and Prof. J. Munro Kerr will propose the motion that the present rate of maternal mortality is a discredit to modern obstetrics and Prof. Gilbert Strachan and Prof. Daniel Dougal will oppose it. All members of the medical profession will be welcome at the debate, for which no admission tickets are necessary. Further particulars may be had from the secretary of the Fellowship at 1, Wimpole-street, W.1.

PROGNOSIS

A Series of Signed Articles contributed by invitation

LXXV.—PROGNOSIS OF GASTRIC AND DUODENAL ULCER

THE difficulties of diagnosis in patients suffering from gastric and duodenal ulcer have been largely overcome by modern technique in radiology, and it is now possible to detect chronic peptic ulcers with a considerable degree of certainty apart from the occurrence of hæmatemesis, melæna or perforation. In consequence many patients who in former years were diagnosed vaguely as some form of dyspepsia are now known to be cases of peptic ulceration. Moreover, there have been considerable advances in the treatment of peptic ulcer both by medical and surgical means. In consequence, experience on which to base the prognosis of ulcers diagnosed and treated by modern methods is relatively limited, and most of the earlier statistics on the subject are of little value.

Acute Ulcers

Peptic ulcers, whether gastric or duodenal, may be classed as either acute or chronic. Speaking generally, patients with an acute ulcer have little or no history of dyspeptic symptoms, and the diagnosis often only becomes apparent as the result of some sudden catastrophe such as hæmorrhage or perforation. The prognosis with acute ulcers is on the whole far better than in the case of the chronic variety. Although hæmorrhage may be severe it is seldom fatal, and the ulcer has a natural tendency to heal under the influence of rest and suitable diet. Acute ulcers are probably infective in origin, and provided that any septic foci, such as teeth or tonsils, are dealt with the patient may never have any recurrence of symptoms. The actual mortality from hæmorrhage due to an acute ulcer is probably between 2 and 4 per cent. of patients who develop this complication. Many acute ulcers may ultimately become chronic as a result of lack of treatment, gastric hypersecretion, or interference with gastric motility.

Chronic Ulcers

The prognosis of chronic peptic ulcer may be considered from two points of view: (1) mortality, and (2) morbidity. It must not be forgotten that many patients with chronic ulcers drag out a miserably dyspeptic existence to a relatively advanced age. In connexion with the prognosis as regards mortality, the possibility of a carcinoma developing on a simple ulcer must be considered.

CAUSES OF DEATH

How then may a peptic ulcer lead to the death of a patient? Obviously the two most dangerous and frequent complications of an ulcer are perforation and hæmorrhage. Death from the former is now relatively uncommon, provided adequate surgical treatment is promptly available. Nor are deaths from hæmorrhage frequent in relation to the large number of patients who suffer from chronic peptic ulcers. Probably not more than 20 per cent. of ulcers bleed severely, and of these not more than 5 to 10 per cent. die of hæmorrhage. The age of the patient is an important factor in prognosis. Death from hæmorrhage due to a chronic ulcer is very unusual before the age of 50. On the other hand, there is a much increased risk with elderly patients whose arteries are atheromatous. Patients rarely die unless they have several hæmorrhages within a short time, and if further bleeding takes place it usually does so within four days. Consequently in cases of severe hæmatemesis it is usually safe to give a good prognosis, at any rate as regards immediate risks, if four to five days have elapsed without recurrence. Modern methods of treatment, especially transfusion, and the disinclination of surgeons to operate when a patient is bleeding have materially improved the prognosis. Pyloric stenosis or hour-glass stomach, both of which may result from peptic ulcer, may endanger life by severe malnutrition or alkalosis. In such cases the results of surgical treatment are usually good.

It is difficult to say with any certainty what proportion of patients with chronic ulcers are ultimately operated upon, but it is probably in the neighbourhood of 25 per cent. The immediate risks of operation are by no means negligible, and in all probability are far greater than the danger of death from hæmorrhage. The average mortality following all operations for ulcer is certainly not much less than 5 per cent., even in the hands of reasonably competent surgeons.*

Apart from the immediate risks of death from operation there are smaller but very definite dangers due to the development of such serious complications as gastrojejunal or jejunal ulcers and gastrocolic fistula. Most surgical statistics suggest that these complications occur in only between 2 and 4 per cent. of patients operated on for ulcer. Physicians who often have to deal with operative failures would probably put this figure considerably higher. The mortality of secondary operations is very high, and the chances of a completely successful result relatively small.

At this point the question of the risk of malignant changes developing in peptic ulcers must be raised. Carcinoma of the duodenum is practically unknown, and patients with duodenal ulcers run no special risk of developing malignant growths. This, however, is not true of gastric ulcer, where undoubtedly carcinoma may supervene on a simple ulcer. How frequently this occurs is a matter in which there is a wide difference in opinion. Speaking generally, most clinicians regard the risk as small, whereas many pathologists take the view that malignant change occurs in a high proportion of gastric ulcers. The main argument against the idea that carcinoma often develops in a simple ulcer is that patients with carcinoma of the stomach rarely give any indication in their past history of symptoms pointing to a chronic gastric ulcer. Whereas most patients who come under treatment for gastric ulcer have obviously suffered from the condition for many years, at least 80 per cent. of proved cases of carcinoma of the stomach have had perfect digestions until a comparatively short time before the presence of a growth becomes apparent. It may therefore be argued that the risk of death from a gastric carcinoma is little greater in patients with peptic ulceration than it is among the general population.

The general conclusions from the facts cited above indicate that the prognosis as regards expectation of life is not very unfavourable in patients known to be suffering from chronic peptic ulcer. It is

* The mortality-rates of the various operations were differentiated in a previous article in this series on the Prognosis in the Surgical Treatment of Peptic Ulcers by Sir James Walton (THE LANCET, 1934, ii., 37).

probably true to say that if 100 patients with proved ulcers, gastric and duodenal, were traced throughout life not more than five or six would be found to die as a direct result of the presence of the ulcer.

MORBIDITY

If we now turn to the prognosis as regards the maintenance of good health and continued freedom from symptoms we are faced with a far more gloomy picture. The frequency of relapses renders the condition serious and sometimes completely disabling. Although both medical and surgical treatment can claim a good proportion of permanently successful results, only too often the tale is one of continued relapses in spite of treatment.

The outlook as regards the rapid relief of symptoms under medical treatment is extremely good. Nearly all patients with uncomplicated ulcers, whether gastric or duodenal, are relieved of their pain within one week of instituting strict medical treatment with rest, diet, and alkalis. Unfortunately the improvement is often not maintained for very long when the patient has returned to a normally active life.

STATISTICS

There have been a number of statistical inquiries into the after-histories of patients who have received medical treatment for chronic peptic ulcers. Some of these date from twenty or more years ago and are of little value owing to the inadequate methods of diagnosis then in use. In more recent statistics the after-history of the patient has been studied for a relatively short period, so that it is difficult to judge to what extent cures have been permanent and complete. One disquieting fact does, however, emerge from the published figures—namely, that the longer the period of observation after medical treatment, the greater becomes the proportion of relapses and the smaller the proportion of complete cures. This indeed is true not only of medical but of surgical treatment of ulcers. Gastrojejunal or jejunal ulcers may develop even ten years or more after operations such as gastrojejunostomy. It is doubtful whether medical treatment effects a complete and permanent cure in over 50 per cent. of cases, whether gastric or duodenal. The value of any statistics in which the patients have been followed up for less than four years is very problematical.

Statistical inquiries, however carefully conducted, into the late results of treatment for gastric and duodenal ulcer, whether medical or surgical, can do little beyond show certain percentages of cures and failures. Such inquiries can be of little help in assessing the prognosis of the individual patient. When faced by the prospect of a long course of dietetic treatment, or perhaps even of an operation, the average patient will find only cold comfort in the fact that a certain percentage will do well and a certain percentage badly. What the patient really wants to know is what are his own chances of a successful result. Is it possible by a careful consideration of the individual patient to form a reliable judgment as to his future progress? On what grounds are we to differentiate between a favourable and an unfavourable prognosis in the individual case?

FACTORS IN PROGNOSIS

Although giving a prognosis is necessarily a hazardous procedure, particularly in a disease such as peptic ulcer, there are certain general principles which are of value.

The first and perhaps the most important factor in assessing the prognosis is the fact that the chance of a permanent cure varies inversely with the *chronicity* of the ulcer. Peptic ulcers which are diagnosed early—within six months or even a year of the onset of symptoms—are undoubtedly more amenable to medical treatment than are those which have been present for many years. Unfortunately at the present time few patients with ulcers are diagnosed and efficiently treated until they have had a series of relapses, each one longer and more severe than its predecessor. At any rate, with patients of the hospital class it is rare for any serious attempt to be made to treat the patient until the ulcer has been present for many years, and sometimes not until cicatricial changes have produced mechanical derangements, such as pyloric stenosis or hour-glass contraction. Other things being equal, therefore, a short history justifies a good prognosis, while in the very chronic cases with histories of numerous relapses over many years optimism is unlikely to be justified. With increasing clinical knowledge and the increased efficiency of radiology, it is to be hoped that more ulcers may come under strict treatment in their earlier stages. When this happens, the late results of medical treatment should improve.

Another important factor in prognosis is the *age of the patient*. Elderly patients with ulcers, whether gastric or duodenal, are notoriously unsatisfactory, and often even with strict and prolonged treatment the ulcer may fail to heal and recurrences are extremely common. In the case of elderly patients with large gastric ulcers there is always the possibility of malignancy. A fractional test-meal with a high or normal acid curve makes this contingency very unlikely, but even so a large gastric ulcer in any patient over 60 is unlikely to heal satisfactorily under medical treatment.

In assessing the prognosis in patients with duodenal ulcers a very *high gastric acidity* is an unfavourable sign. The ulcer is more likely to recur if the concentration of acid is very great and if such patients have gastrojejunostomy performed there is a considerable risk of gastrojejunal or jejunal ulceration. On the whole duodenal ulcers tend to occur earlier in life than do gastric ulcers, and they usually react more satisfactorily to medical treatment. Ulcers, either gastric or duodenal, which have penetrated deeply, causing erosion of the pancreas or liver, frequently completely fail to respond to medical treatment and require surgical intervention.

The ultimate prognosis also depends to a considerable extent on the *psychology* of the individual patient. Medical treatment cannot be effective without the close coöperation of the patient, and calls for great attention to detail, perseverance, and self-control. Only too often patients with peptic ulcer, particularly duodenal ulcer, are of the active over-anxious type; it is often difficult to persuade such patients of the necessity for a strictly controlled life and régime, once the troublesome symptoms have passed off. The ultimate prognosis must be unfavourable in any patient who is unwilling to amend his ways as regards smoking, alcohol, irregularity of meals, overwork, late nights, and the pleasures of the table. All these factors predispose to a recurrence of ulceration, and if the patient has not sufficient strength of mind to control himself, not only for months but even years, further trouble is almost inevitable. Only too often it needs some dramatic complication, such as a severe attack of hæmatemesis, to render the patient amenable.

Finally the *family history*, the *social status*, and the *occupation* of the patient are important. A history

(*Continued at foot of opposite page*)

POST-GRADUATE LECTURES

THE two lectures summarised below were given at week-end post-graduate courses held this autumn in the London teaching schools. Mr. Patterson, whose lecture was illustrated by instruments, radiograms, and drawings, spoke at the London Hospital, and Mr. Gwynne Williams at University College Hospital.

DIRECT INSPECTION OF THE LARYNX, LOWER PHARYNX, LOWER AIR-PASSAGES, AND GULLET

(MR. NORMAN PATTERSON)

FOR the direct examination of the air-passages and œsophagus there are so many different forms of instrument that it is often difficult to select the type best suited for a particular case. In dealing with the laryngopharynx and larynx, instead of a tubular laryngoscope, I prefer some form of suspension apparatus or directoscope. With such an instrument both hands are free for manipulations, binocular vision is often possible, and the biting-out of a piece of tissue for biopsy or the removal of an innocent tumour can be carried out with great precision. Employing a suspension instrument a tumour or cyst can sometimes be removed accurately by dissection. In working at a lower level a bronchoscope with terminal illumination offers many advantages over one which carries a light at its proximal end. With such an instrument manipulation with forceps is greatly facilitated and it is much easier to gauge the relationship of the forceps to the distal end of the tube. In some cases tubes fitted with a lens, and giving a magnified view of structures, are useful.

In this country there is still a great deal of prejudice against the direct examination of the air-passages with the bronchoscope. If properly carried out, a bronchoscopy is, unless there is some definite contra-indication, practically free from danger; even in the presence of serious disease in the lungs, provided no general anæsthetic is administered, the risk is infinitesimal. If bronchoscopy were performed as frequently as it ought to be no doubt many negative findings would have to be recorded; a report that the bronchial tree is healthy may, however, be useful to the physician.

Recently I paid a very short visit to Philadelphia and I had the pleasure and honour of being shown over the Temple University Hospital Clinic by Dr. Chevalier Jackson, a man who by his genius and untiring energy has done more for the science and art of bronchoscopy than any other worker in this field. I also had the advantage of visiting the clinics of Drs. Tucker and Clerf. The amount of work which is being done at these clinics is simply astounding. The diagnosis and removal of foreign bodies, of which there are a very great number, forms but 2 per cent. of the total number of cases.

It is rather a common fallacy that, apart from dealing with foreign bodies, there is not much of a field for the endoscopist. I will mention only a few of the conditions which may call for bronchoscopic inspection; they include dyspnœa due to tracheal or bronchial obstruction, certain cases of atelectasis, bronchiectasis, abscess, obscure cough, wheezing, asthma, and so forth. In Philadelphia the most delicate operations are carried out in children, no anæsthetic being employed. Even in infants it is sometimes found necessary to pass a bronchoscope.

It is interesting to note that early in the century Brünings, a pioneer in the subject, stated that the use of a tube of less than 7 mm. diameter was impracticable, and if the child's larynx was too small to admit a tube of this size investigation must be made through a tracheotomy opening. Now tubes of 3 mm. or even less are employed.

Associated with the rapid progress made in bronchoscopy much has been done by physicians, and the name of McCrae deserves special mention in connexion with the symptomatology and physical examination of the chest in foreign body cases and those due to disease. It must be admitted that occasionally a foreign body may be present in a bronchus with a complete absence of either signs or symptoms. Such a case was admitted to the London Hospital a short time ago, when I removed a metallic body, visible of course on X ray examination, from the bronchus of a child. Careful physical examination revealed no changes in the chest. A foreign body may also lodge in the œsophagus and give rise to no signs of its presence or cause misleading symptoms referable to the air-passages. There are various symptoms which point to partial obstruction of a bronchus or to a foreign body which is moving about in the tracheobronchial tree. Adventitious sounds may then be produced. For instance, the impact of a body against the subglottic region may produce a characteristic noise. I have met with two cases in which children aspirated portions of toy musical instruments. The active part of the instrument in both cases continued to function while lying in the bronchus and a whistling noise could be heard at some distance.

Many interesting chest conditions result from the presence of foreign bodies. Owing to movement of an object to a new position, sometimes on the other side of the chest, the physical signs may undergo sudden alterations. With regard to the effect of a foreign body on the thoracic contents much depends on its position, relative size, and composition. Organic bodies are liable to cause irritative and inflammatory changes. In estimating the importance of the changes found on physical examination the anatomy of the bronchial tree must be kept carefully in mind, and of course an intimate knowledge of the anatomy of this region is necessary to the successful radiologist and bronchoscopist. A tumour occupying a bronchus or one of its branches will produce symptoms in many respects comparable to those caused by a foreign body. Symptoms and physical signs will vary with the situation, attachment, whether

(*Continued from previous page*)

of peptic ulceration in other members of the family is not very uncommon and is an unfavourable prognostic point. Patients who are financially independent do better than those who have to worry about an early return to work, as the former are more likely to be able to afford the necessary time and expense for thorough treatment. Any occupation which involves a life with irregular or hasty meals, does not conduce to permanent cure. This is well exemplified by the frequency of duodenal ulcer in the medical profession.

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sessile or pedunculated, and amount of obstruction caused by the tumour.

It is easy to demonstrate by X rays an opaque foreign body. When the body is non-opaque, areas of increased dullness or translucency or the presence of displacement of the heart and diaphragm may point to the existence of a foreign body. I cannot here go into all the various uses to which the bronchoscope may be put; I will only mention one condition where bronchoscopy may prove of the greatest help. It is well known that a large proportion of malignant growths of the lungs start in the larger bronchi. The early symptoms are insignificant and it may be impossible to make certain of the diagnosis without a direct visual examination. Occasionally a tumour which has all the appearances of malignancy turns out to be of an innocent nature and its removal may result in a complete cure. The tumour may prove to be due to some other cause such as chronic inflammation, tubercle, or syphilis. A stenosis or distortion of the bronchial wall may be produced by an extramural tumour.

To the thoracic surgeon a report by the bronchoscopist may be indispensable. It may indicate the extent and nature of the operation to be performed or it may reveal a condition which cannot be dealt with surgically. In inoperable cases the insertion of a radon container or radon seeds has been followed by relief which may extend over years.

Œsophagoscopy should be employed in the removal of all cases of foreign body in the gullet with the exception of bodies which have passed through the wall of the tube into the tissues of the neck. The most common form of œsophageal obstruction is unfortunately due to malignant disease, and here treatment with radium or by radical surgery has been almost a complete failure. The best that can be done is generally an early gastrostomy.

There are many other causes of œsophageal obstruction, some of which lend themselves to treatment. Fortunately, in this country stricture due to the swallowing of lye, which is common in American children, is practically unknown.

SURGICAL TREATMENT OF ARTERIAL OBSTRUCTION IN THE LEG

(MR. GWYNNE WILLIAMS)

A FEW years ago the only surgical treatment of these defects of the arteries of the lower limb would have been the performance of an amputation, usually a major one above the knee-joint, to deal with a fully developed gangrene. Now operations designed to paralyse the sympathetic supply to the limb offer some hope that the death of the part may be prevented, or at any rate postponed, and the comfort of the patient promoted.

In a limb in which the vessels are normal, such as the cold leg of a patient who has been paralysed by anterior poliomyelitis, the excision of the lumbar sympathetic cord will produce a permanent change. The skin of the limb will be warm from the middle of the calf downwards and the patient is saved from the painful foot and chilblains which every winter has brought. Such a perfect result could not be hoped for in a limb in which the vessels are diseased. Various methods have been tried in order to test beforehand whether paralysis of the sympathetic will bring about the desired result: they include injection of foreign proteins, spinal analgesia, anæsthetisation of the peripheral nerves, and the warming of the patient while the affected part is kept outside the direct influence of the heat. These tests undoubtedly in many cases enable a forecast to be made of the effect of sympathectomy, and if any of them is to be used the last is the preferable method. Spinal analgesia is not a procedure to be lightly undertaken; I have had considerable experience of it and it is not devoid of risk. At present my impression is that in some cases in which the tests predict the failure of a sympathectomy the operation will be followed by success.

The next question is as to which of the clinical features of arterial obstruction will be affected by the sympathetic paralysis. The only changes which we can directly observe are those in the skin: the foot will become warmer and will lose its blue-red colour; small patches of dead skin will separate and indolent ulcers will heal.

The other conspicuous feature of the obstruction—namely, intermittent claudication associated with a deficient blood-supply to the muscles—does not seem to be so certainly influenced. This might be expected if it is true that the vessels of the muscles are not dilated after sympathectomy. There are cases in which the patient who has had the sympathetic removed is able to walk further without suffering pain, and the analogous relief of angina pectoris by removal of the stellate ganglion make it desirable that further observations should be made on the results of such operations.

I have here to-day a patient of 56 who came to the hospital eighteen months ago complaining of intense pain in the right foot, which she had had for three years. The foot was red-blue and cold, and her toes were so tender that she resented their being touched. There was a small patch of gangrene on the tip of the big toe. At first glance the case seemed eminently suitable for a lumbar sympathectomy, but a further examination showed that she had a systolic blood pressure of 250 and that her heart was in such a condition that it was doubtful whether that operation would be justifiable. Something had to be done for her pain since it prevented her from sleeping, so I injected some 50 per cent. alcohol into the posterior tibial nerve behind the malleolus and a few days later into the peroneal nerves in front of the ankle. I was hoping to produce a temporary anæsthesia and possibly a more permanent sympathetic paralysis. The immediate effect was naturally a loss of the pain associated with the analgesia and the foot became warmer and of a more normal colour. The dead patch separated, the skin healed, and the patient went out relieved of her symptoms although the anæsthesia had disappeared a few weeks after the injection. This relief of symptoms lasted for a year, after which she returned with her foot in the condition which she had originally shown. I again attempted an alcohol injection but failed to hit off the nerves, so a month ago I cut down on the nerves and excised an inch from each of them. The operation wounds have healed slowly, indicating the deficiency of the circulation; but her foot, while slightly pinker than the opposite one, is almost normal in colour.

The improvement in the circulation must be due to local paralysis of the sympathetic and this and the sensory nerve action have relieved her pain. I have succeeded in two other cases with the alcohol injection, but it is not always possible to hit off the nerve, and it is better to excise a portion of the nerves.

Perhaps I have said enough to show you that

(*Continued at foot of opposite page*)

SPECIAL ARTICLES

ELECTRIC SHOCK AND SUBJECTIVE SENSATION

IN RELATION TO ANÆSTHESIA AND HUMANE SLAUGHTER

By C. W. Hume, M.C., B.Sc.

HON. SECRETARY, UNIVERSITY OF LONDON ANIMAL WELFARE SOCIETY

When an electric shock is strong enough to make a person inert, he usually becomes unconscious almost at once ; but cases have been known in which persons, apparently unable to move or speak, have retained both consciousness and sensibility to pain. It is naturally difficult to discover what are the chances of this happening. With accidents the conditions cannot be controlled beforehand, and the information available afterwards is apt to be scanty and lacking in precision. Deliberate experiment, on the other hand, is restricted by the risk of fatal consequences.

The data summarised in this article were collected in the hope of throwing some light on the question whether the use of electricity as a preliminary to the slaughter of animals for food is, in fact, a reliable means of producing unconsciousness. I hope, however, that they may have a more general interest.

FACTORS WHICH DEFINE THE ELECTRICAL STIMULUS

In electrical accidents it is usual to regard the voltage as the factor that determines the strength of the shock, but actually the voltage gives very little indication of the real strength of the stimulus. The only electrical factor which really matters is the current-density at some crucial point in the organ affected.[1] It is conceivable that the direction of the current with respect to the axis of the vulnerable organ may also affect the results, but so far as I am aware there is no experimental evidence that it does so.

The current-density depends on a number of factors, one of which is the voltage. It must be remembered, however, that by far the greater part of the voltage-drop occurs at the contact of the electrodes with the skin, and that the resistance at this region is not only very high but very variable. The hand-to-hand resistance of a human being is usually reckoned as a few thousand ohms, but if the resistance of the skin itself be eliminated, the remaining resistance—that of the deep tissues—amounts to only about 200 ohms. When, therefore, we remember that the dampness of the skin, and consequently its conductivity, varies greatly from person to person, we shall see clearly that the voltage between the electrodes no more indicates the strength of the shock to which a person is subjected than the horse-power of a car indicates the speed at which it is travelling. Cases are known in which a workman has for a wager subjected himself to a shock of 500 or 1000 volts : the trick consists in first drying the hands with methylated spirit. On the other hand, it is generally held that 50 volts alternating current is capable of causing death.

It is impracticable to measure the current-density at each point in the body or the brain. The nearest, in practice, that we can get to specifying the strength of the electrical stimulus is to state the size of the animal, person, or part affected, together with the amperage, if possible, or failing that, the factors which determine the amperage—namely, the voltage, the state of the skin (moist or dry), and the pressure or firmness of contact between the electrodes and the skin. In other words, the current-density depends upon the amperage and on the size of the part through which the current spreads out. The amperage in turn depends upon the voltage and on the resistance in circuit. The resistance depends mainly on the size of the electrodes, the dampness of the skin, and the firmness of contact between the electrodes and the skin.

The next most important factor in the electrical stimulus is the wave-form. It is well known that when a potential-difference derived from a battery is applied to a muscle or nerve, the reaction is considerable at the moment when contact is made or broken, but is inconsiderable so long as the current is merely left flowing. In other words, it is the rate of change of direct current rather than the strength of the direct current itself that is of physiological importance. For this reason a shock from direct-current mains is far less effective than a shock from alternating-current mains ; for alternating current consists of a direct current whose strength varies continuously at the rate of about 50 cycles per second, passing from a maximum positive to a maximum negative value and back again in each cycle. In other words, it is a direct current whose strength is constantly changing.

Another type of current which has to be considered is the intermittent direct current produced by interrupting the current from a battery say 100 times per second, the current being left on for one-tenth of each cycle and turned off for the remaining nine-tenths. With an alternating current the strength changes smoothly from one extreme to another, passing through all intermediate values ; but with an intermittent direct current the changes are sudden. Hence we should expect that for a given current-strength the intermittent direct current would have considerably more physiological effect than the alternating current. This expectation is fully borne out by experiments on pigs. The strength of alternating current which is usually recommended in this country in a slaughter-house for pigs is roughly 800 milliamperes, but Regensburger obtained precisely similar results with intermittent direct current of the order of one-twentieth of this amount.[2]

[1] By current-density is meant the amperes per sq. cm. of cross-sectional area.

[2] Details are given in the Animal Year Book, 1935, vol. iii., chap. 7 (Univ. London Animal Welfare Soc., 42, Torrington-square, W.C.1).

(*Continued from previous page*)

something can be done surgically for this arterial deficiency ; but I must emphasise the fact that these measures are not likely to be successful when any mass of tissue has died, and that it is therefore essential that the pre-gangrene condition should be recognised.

The pre-gangrene changes have been most widely observed in thrombo-angiitis obliterans, since in this condition the progress of the disease is slow ; but if sought for they will be found in the arterial change associated with raised blood pressure, old age, and diabetes. In these conditions any treatment which holds out the promise, however faint, of avoiding the mutilation of a major amputation should be tried.

It has been customary, in cases where the current strength was measured at all, to give simply the reading of a milliammeter in series with the animal, but this procedure is misleading to those who are not electricians. For instance, with an intermittent direct current the reading of the instrument can be increased by leaving the current on for two-tenths or three-tenths and off for eight-tenths or seven-tenths of each cycle; and if this is done the increase in the reading of the milliammeter bears no relation to the increase in the strength of the stimulus.

It must be remembered that an ammeter does not record the instantaneous value of the current, which varies far too rapidly to be indicated by any instrument other than an oscillograph. The ammeter records the mean current or more usually the root-of-mean-square current, and the foregoing remarks apply to the changes of instantaneous current which would not be indicated by an ammeter.

At the risk of undue repetition, it is desirable to emphasise the fact that "mean current-strength" may have two different meanings, for confusion often arises in the non-electrical mind on this point. The instantaneous values of a current varying at, say, 50 cycles per second have a mean which is recorded by the ammeter. This must be distinguished from the mean of a series of ammeter readings.

If, however, the current-strength is increased while the wave-form is kept unaltered, we have to consider whether most effect is produced by making the increase all at one stroke, or by carrying it out step by step. It would appear that the step-by-step method is likely to be less effective than the all-at-one-jump method. This remark applies to those changes of mean current-strength which are made so slowly as to be observable on an ammeter.

Another factor which determines the strength of the stimulus is the frequency of the current. Increasing the frequency from 50 cycles to 100 cycles per second makes very little difference to the effectiveness of the stimulus; but if the frequency is increased to hundreds of thousands, or millions, of cycles per second the results are totally different. The nerves and muscles have no time to respond and the only noticeable effect is the development of heat in the tissues. It is for this reason that in electrothermal treatment high-frequency currents may have a strength very much greater than that which would be fatal if the current were of low frequency.

PASSAGE THROUGH HEART AND BRAIN

We have next to consider the point at which the electrodes are applied and the path which the current follows. Kouwenhoven [3] has shown that the current has a specific effect on the organ through which it passes, and the organs which we have to consider are the brain and the heart. It must be borne in mind that the current does not flow along a straight line from electrode to electrode but spreads out in all directions into the tissues, being strongest in the direct route from electrode to electrode, but weaker and weaker at points that lie further and further off this route.

Kouwenhoven showed by direct measurements that when a current was passed from the fore limbs to the hind limbs of a dog, 10 per cent. of it passed through the heart. A comparatively weak current, he found, would produce fibrillation which lasted until death ensued. A comparatively strong current on the other hand caused complete stoppage, but after an interval the heart again began to beat either of its own accord or after restorative action. It has therefore been proposed that where a person's heart has been sent into fibrillation by electric shock, any curative treatment should be preceded by a second shock sufficiently strong to stop the irregular action. In most electric accidents it is the effect of a current passing through the heart that has principally to be considered, whereas in the slaughter-house we are concerned with the effect of passing current through the brain. This effect is twofold. In the first place the muscles of the whole body are strongly stimulated; if the current is strong enough vertebræ may even be fractured by the violence of the muscular contraction. For this reason, if for no other, the use of electric stimulation as an alleged anæsthetic for surgical operations is to be deprecated. In the second place the current inhibits breathing, so much so that artificial respiration has normally to be applied after electric shock. The most important point to observe is that an animal can be rendered inert and apparently unconscious for several minutes by a shock which leaves no detectable lesions in the brain. If it is allowed to recover, its behaviour may become perfectly normal; so that, whatever the cause of the muscular contraction, immobilisation, and inhibition of breathing may be, this cause does not consist in any damage to the brain. After brain shocks caused by strong currents cerebral lesions may be found; but the current-density necessary to produce such lesions is substantially greater than that used in the slaughter-house.

SUBJECTIVE EXPERIENCES IN ELECTRIC SHOCK

As a rule electric shock occurs in such a way that the current passes through the trunk, and therefore through the heart. If unconsciousness is not immediately produced, the victim's sensations are a sense of burning and of pain due to excessive stimulation of the muscles. Usually, however, he becomes unconscious at once.

More difficult and more interesting is the question at what stage unconsciousness ensues when currents of moderate strength are passed through the brain. So far as I am aware there is no case on record where unconsciousness has been caused in a human being by the passage of current through the brain alone, unless that current was strong enough to inflict actual damage on the brain. Lœduc, in 1902, in trying to find an electrical method of anæsthesia, allowed a current to be passed through his head, with the result that his assistants supposed him to be completely unconscious for twenty minutes. As soon as the current was turned off, however, he was able to say that he had been continuously and fully aware of all that was going on. The current used in his case was very weak. More recently, in 1925, Dr. Hertz [4] at the Rothschild Hospital in Paris made similar observations on patients with incurable disease. His currents were considerably stronger; in fact, when allowance is made for the difference in wave-form the stimuli he used were almost as strong as those commonly employed on pigs in the slaughter-house. But they were not quite so strong, for the subjects recovered their mobility as soon as the current was turned off, whereas pigs usually remain paralysed for half a minute or more afterwards. All of Hertz's subjects retained consciousness throughout the experiments and were able to indicate the places where they had been pinched. The current was raised to a strength sufficient to stop their breathing for a short time. The pupil reflex was inhibited, but not other reflexes;

[3] Kouwenhoven and others. The following papers may be consulted: Electrical Engineering (New York), 1930, xlix., 25; 1931, l., 406, 929; 1932, li., 242, 693; 1933, lii., 475; Jour. Indust. Hyg., 1930, xii., 31; 1931, xiii., 145, 321; 1932, xiv., 197.

[4] Hertz, J.: Rev. de path. comp., 1933, xxxiii., 385.

all voluntary motion was inhibited. Thus the tests gave results generally similar to those which were applied when the present system of electric "stunning" was pronounced to be humane.

Electrical accidents may throw some light, albeit a very uncertain light, on the problem; but they suffer, as I have said, from the disadvantages that we cannot choose the conditions under which they will occur and that quantitative data are usually very incomplete. I have however collected a number of instances from electrical engineers who have suffered shock, and have described a few cases in full elsewhere.[2] They prove that it is possible to retain the sense of pain, which may be severe, while speech is inhibited.

The whole subject is one which calls for very thorough study. In view of the commercial vested interests and the partisanship which have become involved, assertions have to be carefully tested in the light of evidence; and usually it will be found that the evidence is inconclusive. I am aware of at least one laboratory where electric immobilisation is being used for the purposes of producing anæsthesia, though fortunately for experiments which would not in any case be particularly painful. In many slaughter-houses in this country and throughout the world the system is in use in the confident belief that it produces genuine anæsthesia. Considering the scantiness of the really reliable data this is a very unsatisfactory state of affairs.

How the question is ever to be settled it is for physiologists to decide. So far as I am aware they cannot at present say why or how an electric current acting on the brain produces the effects that it does produce. These effects seem to differ in certain respects from those produced by an ordinary anæsthetic, and I venture to suggest that superficial tests carried out with a few commercial instruments should not be regarded as sufficiently radical to justify the use of electricity for anæsthetising animals.

MEDICINE AND THE LAW

Use of the Description "Manipulative Surgeon": A High Court Decision

LAST November the Paignton magistrates dismissed summonses under Section 40 of the Medical Act against Captain Horace Barrow, described as a bone-setter, who had used the title of "manipulative surgeon" after his name on the gatepost of his house and on his motor-car. When invited by the Medical Defence Union to justify or discontinue these words he replied that he was not using the title of "surgeon," and would not give up the description on his plate until it was proved that he was not a "manipulative surgeon." As we pointed out at the time (1934, ii., 1186) the Medical Defence Union was not contending for a monopoly of medical or surgical treatment; Captain Barrow was not summoned for manipulating his patients' limbs, but simply for the adoption of a description which blurred the distinction made by the Medical Act between qualified and unqualified practitioners. An appeal against the decision was heard in the King's Bench Division on Oct. 25th, when Captain Barrow's counsel contended that the title "manipulative surgeon" had been used for at least 20 years to describe a person not registered under the Medical Act, 1858, who could manipulate bones and joints for the purpose of healing. Lord Hewart in delivering judgment said it was proved or admitted that Barrow had outside his house a plate bearing his name and the words "manipulative surgeon." He was described in like terms on his motor-car and in the telephone directory. He was not registered under the Medical Act, nor was he a qualified medical practitioner within the meaning of that Act. Captain Barrow had expressed his willingness to adopt some other name to describe his work if another name could be found which would properly describe it. "It is quite obvious," said Lord Hewart, "that there are other names which would fulfil that purpose, as, for example, the words 'manipulative healer.'" If Captain Barrow desired to represent that he was not a qualified surgeon it was unfortunate that he should choose the description "surgeon." The thing which made that name appear to be attractive and useful was, said Lord Hewart, precisely the thing Section 40 of the Medical Act, 1858, was enacted to prevent. The appeal, he said, must be allowed and the case sent back to the justices with the direction to find that the offence which was charged had been proved. After delivering his formal judgment, Lord Hewart added: "Speaking for myself I cannot imagine any adjective which, being added to the title 'surgeon,' would excuse the use of the word 'surgeon' by a person not registered or recognised as a surgeon under the Act of 1858 unless, as in the case of a veterinary surgeon, he is expressly protected by statute." Justices Humphreys and Singleton concurred.

Failure of Bruno Hauptmann's Appeal

The full report of the judgment dismissing Bruno Hauptmann's appeal from his conviction for murder in the Lindbergh baby case has now arrived from America. This sensational trial, which led to a special law being passed against kidnapping, has less medico-legal interest than might have been expected. It had been rumoured that the appeal would be fought on a denial of the identity of the missing baby with the dead body which had been found buried not far away from the Lindberghs' home. The rumour proved false. The defence at the original trial had announced that the identity of the corpse was not challenged. To spare the mother's feelings, questions relating to identification were not put to Mrs. Lindbergh in the witness-box; the police were, in any event, prepared to establish identity beyond all doubt. If a slight overlapping of one of the baby's toes was inconclusive, Col. Lindbergh had been satisfied by examination of the teeth of the dead body, since, shortly before the child was kidnapped, he and Mrs. Lindbergh had very carefully inspected the teeth and had noted certain peculiarities. Another point of identity was the unusual size of the opening of the fontanelle; and, finally, the hair from the head of the disinterred body could have been proved identical with a lock of hair which the child's grandmother had cut from his head. The appellate court of New Jersey announced that a verdict of "Guilty" was inevitable in view of (*a*) Hauptmann's possession and use of the ransom money, (*b*) the handwriting of the notes in which the ransom was claimed, and (*c*) the identification of wood used in the ladder abandoned by the criminal near the Lindberghs' house with wood taken from Hauptmann's own house. This last point was established by patient and skilful research.

The delay in bringing on this American appeal is in contrast to the swift procedure in our English Court of Criminal Appeal. The papers in Hauptmann's case were, however, voluminous and the

appeal was set down too late for the spring session of the New Jersey "Court of Errors and Appeals." Among the many grounds relied upon by the appellant's counsel were (1) that the dead child's father (with other prominent persons unconnected with the case) was present in the court throughout the trial, (2) that there were frequent demonstrations of laughter and applause by spectators, (3) that messengers and clerks disturbed the proceedings, and (4) that press reports and radio broadcasts were made freely. The appeal court found no substance in these matters, especially as no protest was made at the time. Another unsuccessful ground of appeal was that the jury had been allowed the use of a magnifying glass. "We see no more objection to this," said the court, "than to the use of eyeglasses by an individual juror." The judges further declined to accept appellant's contention that the opinion of handwriting experts, based on mere comparisons, "must be esteemed proof of low degree." In its general procedure and legal attitude the New Jersey court is but little different from an English court; but there is one striking exception. For ancient and historical reasons, based partly on mistrust of lawyers and partly on suspicions of the judges appointed by the Crown in the early days of the colony, the New Jersey Court of Errors and Appeals includes lay judges; the nine fully qualified lawyers on the bench had four laymen as their colleagues on this occasion. In one other respect there was a further difference. The Attorney-General of New Jersey, when addressing the jury finally on behalf of the prosecution, was said to have expressed his personal belief in Hauptmann's guilt and to have used vituperative words about him. The appeal court took no notice of this; protest should have been made at the time; moreover, counsel for Hauptmann has expressed a personal belief in his innocence. In an earlier New Jersey case, cited on the appeal, a prosecuting counsel had described a defendant as "a monster in his passions, licentious in his desires, beast in his love, brutal when thwarted, and cowardly when caught." Even these full-blooded denunciations were ruled not to have been a ground for interference with the subsequent verdict.

The failure of all the points raised on Hauptmann's behalf is presumably final. His representatives are said to be considering an appeal from the New Jersey courts to the Supreme Court of the United States. This could only succeed if the Federal Court thought Hauptmann had not been tried, in the famous language of the United States Constitution, with "due process of law"—e.g., if the atmosphere of the trial was so charged with prejudice that the trial was unfairly conducted.

LONDON MEDICAL EXHIBITION

(*Concluded from p. 979*)

WE gave some account last week of the exhibition in the New Horticultural Hall where nearly 170 stands, adequately displayed, afforded medical practitioners the chance of seeing the best and latest in drugs and pharmaceutical products, the wide choice of new foods and vitamin preparations, and of handling the improved surgical instruments and appliances. A few stands of a more general character remain to be mentioned.

Books and Journals

(21, 22) BAILLIÈRE, TINDALL AND COX (7 and 8, Henrietta-street, W.C.) had a display of medical books from this country and America published by themselves and other firms, and specially pointed out the fourth edition of Bigger's "Bacteriology"; Griffith's "Injury and Incapacity"; Köhler's "Röntgenology," a new translation of the latest German edition; and the fifth edition of J. L. Livingstone's "Aids to Medicine."—(20) WILLIAM HEINEMANN LTD. (99, Great Russell-street, W.C.) specially selected from their show of books "Woman," in three volumes, by Pless and Bartels, a historical, gynæcological, and anthropological compendium; and also mentioned Souttar's "Radium and Cancer," and the same author's "Art of Surgery"; and the Van de Velde series, of which the latest is "Ideal Birth."—(32, 40, 41) H. K. LEWIS AND CO., LTD. (136 and 140, Gower-street, W.C.), showed their range of medical stationery and furniture, especially the new Unix multiplying book-case unit; and from among their general display of medical books pointed out the catalogue of their lending library and the new edition of the "Extra Pharmacopœia," ready immediately; the first annual issue of "Reports on Chronic Rheumatic Diseases," edited by C. W. Buckley; Bailey and Love's "Surgery for Nurses," and "A Short Practice of Surgery"; the collected papers of St. Mark's Hospital; a new edition of Moncrieff's "Nursing and Diseases of Children"; and "Urology" by Roche, an addition to the "General Practice" series.—(76) MEDICAL PRESS AND CIRCULAR (8, Henrietta-street, W.C.) showed their popular journal written by specialists for general practitioners, with its symposia and four special numbers on special subjects; also a series of reprinted articles on Modern Treatment in General Practice.—(25) OXFORD UNIVERSITY PRESS (Amen House, Warwick-square, E.C.) drew attention to Russell Brain's "Diseases of the Nervous System"; Samson Wright's "Applied Physiology"; Campbell and Poulton's "Oxygen and Carbon Dioxide Therapy"; and the fourth edition of "Woodwark's Manual of Medicine."—(156) THE PRACTITIONER (6–8, Bouverie-street, E.C.) reminded visitors of their valuable monthly journal, and specially pointed out their enlarged issue on recent advances in treatment, and other symposia in special numbers.—(98) JOHN WRIGHT AND SONS, LTD. (Bristol), publishers of the "Medical Annual," showed Böhler's "Treatment of Fractures"; French's "Index of Differential Diagnosis"; Hutchison's "Index of Treatment"; and Semon and Moritz's "Atlas of the Commoner Skin Diseases."

Spas and Miscellaneous

(60) BATH had a stand to remind visitors of the only natural hot springs in Britain, and showed illustrations of their mud pack, hot pool, and thermal vapour treatments, and of the deep bath with undercurrent douching.—(39) BUXTON said that the most important new feature at this spa is the clinic for patients of limited means which has been open since midsummer. For an inclusive and moderate fee patients can now obtain board, lodging, medical advice, spa treatment, and all necessary pathological investigations.—(178) A. C. COSSOR LTD. (Cossor Works, Highbury-grove, N.5) showed their improved model portable electrocardiograph in which the camera, amplifier, and recorder have now been united in one unit, with a small H.T. separate unit for A.C. or D.C. mains or a car battery. They pointed out the value of their apparatus, which has no string to break, which is protected from all distortion, and which suffers no ill-effects from overloading. They had also a mobile hospital unit designed chiefly for students, as it is visual only and has no camera.—(9) GAS LIGHT AND COKE CO. (Horseferry-road, S.W.) showed some of the newest gas fires for consulting-rooms and wards, with self-lighting switches which may be worked either at the fireside or at a distance; and claimed that the modern fire changes the air in the room four or five times an hour.—(152) HARROGATE informed visitors that short-wave diathermy is an important feature of the service

(*Continued at foot of next page*)

BRITISH MEDICAL ASSOCIATION

MEETING IN MELBOURNE

SECTION OF OTO-RHINO-LARYNGOLOGY

Mr. F. MUECKE presided over the meeting of this section when Mr. L. GRAHAM BROWN (London) read the opening paper on the treatment of

Chronic Suppurative Otitis Media

He said that the first duty of the doctor was the prevention of chronic middle-ear suppuration. This consisted in (1) teaching rules for diminishing the likelihood of aural infection; (2) its proper care and treatment in the acute stage, especially when complicating exanthematous fevers; (3) searching for and treating a focus in nose and nasopharynx, or in the mastoid itself. A less generally known cause was latent mastoiditis, especially in young children. This condition might be suspected when an acute otitis media did not resolve in 10 to 14 days, no obvious exciting cause being present. In these cases radiograms were of great value, enabling the surgeon to make a diagnosis, and to intervene before the suppuration became chronic. A simple mastoidectomy was usually quite adequate. The aim of treatment was to deal with the suppurative focus, at the same time preserving maximum hearing. For this reason, conservative measures were first choice and a cure was to be expected in 70 to 75 per cent. of cases. The best response was obtained in those cases where the infection was confined to the atrium of the middle ear, and the perforation was in the centre of the tympanum. Many methods of conservative treatment were available, but the following "wet" method was considered very suitable: the instillation of hydrogen peroxide drops into the meatus, followed by syringing with boric acid solution. This was followed by guttæ S.V.R., or pulv. boric. + 1 per cent. iodine. No improvement after 2–3 months in adults, or after 1–2 months in children, usually indicated the necessity for surgical treatment. Minor surgery, to promote better drainage, to allow antiseptics to penetrate, and to remove diseased tissue, cured only a few cases, but was nevertheless justifiable, especially when more radical methods were refused. When planning a major operation, the surgeon had to find the happy medium, and this would mean dealing adequately with the pathological lesion, but at the same time not unduly diminishing the function of hearing. As the extent of internal damage could often be assessed only at the time of operation, it was best, when the indications were not precise, to proceed conservatively, extending the operation as found necessary. Complete radical operation would be found necessary in most patients suffering from chronic otitis with threatened intracranial suppuration; in those subject to acute exacerbations complicated by facial paralysis of recent onset, or with cholesteatomatous involvement; in those which showed clinically definite sagging of the post-superior meatal wall, and evidence of underlying osteitis; and in those which had resisted conservative treatment.

Simple mastoidectomy was particularly indicated, the speaker continued, in most cases of early chronic suppuration resisting conservative treatment, especially in children when latent mastoiditis had been diagnosed. It would probably also suffice in cases where the tympanic membrane did not appear unduly reddened, but where pus could be aspirated into the cleansed meatus from the antral region, the perforation being situated in the posterior portion of the membrane, even though it were central or marginal. Three points were important in this operation: (1) The incision should be made some distance behind the posterior auricular sulcus. (2) All diseased cells should be opened up. (3) No plastic operation should be performed on the meatus. Mr. Graham Brown had adopted a method of post-operative drainage giving complete satisfaction. About 5 c.cm. of eusol were syringed in through a small tube emerging at the lowermost part of the wound every 1–2 hours during the waking period for 3–4 days. This gave great relief, promoted quick healing, and caused no irritation. Sometimes he used two tubes. A modification of the conservative-radical operation, as first practised by Heath, was used in attic disease. Here, if it was necessary to remove the necrosed incus, it was advisable also to remove the head of the malleus, thereby providing better drainage. During the first week of after-treatment the meatus must be packed firmly with narrow ribbon gauze. Persistent suppuration after operation might be due to faulty technique; skin or muscle grafts, or some plastic form of operation on the meatus might then be found necessary. In conclusion the speaker said that future advance could be expected in better prophylactic measures, and in restoring the mobility of the oval and round windows.

Dr. ROBERT GODSALL (Sydney) favoured conservative treatment for as long as three months or longer if there were favourable indications. He thought zinc ionisation was useful and liked boric powder with 1 per cent. iodine. Polypi should not be removed surgically, but should be cauterised with silver nitrate. Attic syringing was dangerous unless there was a large tympanic opening, as meningitis might result. Vesiculectomy was not indicated; this was difficult to perform and the disease had usually spread beyond the area concerned making cure impossible. "Wet" ears after operation were usually due either to involvement of the Eustachian tube—if this remained patent—or to the outer attic wall being insufficiently dealt with.

Dr. H. J. GRAY (Perth) thought X ray examinations of great help in diagnosing the extent of chronic otitis media, and also in assessing the degree of cure. He thought that swimming was very dangerous in ear infections and that no type of ear pad was efficient.

(*Continued from previous page*)

offered to patients, and that Fango, the medicinal mud, is yielding very good results. Diet schemes have been drawn up by the medical profession for half a dozen conditions and many of the hotels undertake to enforce them when required.—(110) INHALING DRUG AND APPARATUS CO., LTD. (87, Eccleston-square, S.W.), were present again with their Collison inhaler for the administration of oxygen with vaporised liquids, used chiefly for the treatment of asthma, bronchitis, and pneumonia and also for the nasal passages.—(67) KOLYNOS INCORPORATED (Chenies-street, W.C.) showed their popular dental cream and powder and liquid Kolynos mouth-wash.—(58) MEDICAL SICKNESS ANNUITY AND LIFE ASSURANCE SOCIETY LTD. (300, High Holborn, W.C.) had their usual stand, where they proffered good advice on all kinds of insurance.—(157) SPARKLETS LTD. (93, Regent-street, W.) emphasised their auxiliary atomiser for the Sparklet carbon dioxide hygienator, which provides an economical means of supplying small quantities of any desired solution in a highly atomised form.

He advised surgical intervention in otorrhœa accompanied by much smell, if this latter could not be removed by two weeks' treatment. Syringing was in his view good, but should be done only by a trained person; he used antiseptics before going on to spirit preparations. Surgery had very little value in bilateral otitis. His practice covered a very large geographical area and he thus had to vary his treatment according to what kind of after-care could be performed.

Dr. J. ACOMB (York) dealt mainly with prophylaxis; in his opinion little advance in treatment had been made since the introduction of the radical mastoid operation. This operation, he hoped, would become extinct. He advised operation if the hearing was becoming progressively worse. He had seen three cases of preoperative facial paralysis within one month.

Dr. H. M. JAY (Adelaide) mentioned that conductive deafness, without cochlea deafness, was an indication for operation, as this would not lessen the hearing in the ear.

Dr. A. B. K. WATKINS (Newcastle, N.S.W.) treated cases of running ear after an acute otitis media by removing infected tonsils, polypi during the first six weeks, and then doing simple mastoidectomy if necessary. In post scarlet fever otitis he operated earlier.

Mr. J. F. O'MALLEY (London) considered osteitis to be the chief factor, the osteitis being situated mainly in the region of the tympanic ring—except in the case of cholesteatoma. He always tried to treat superficial osteitis, and he gave a better prognosis if he could heal it.

Dr. D. GUTHRIE (Edinburgh) emphasised the importance of prophylaxis, and mentioned the fact that children with an acute otitis media, followed by an acute mastoiditis, seldom developed a chronic otitis.

Dr. C. M. O'HALLORAN (Sydney) said that in spite of prophylaxis very chronically inflamed ears would be encountered. In his experience, a narrow skull was conducive to a running ear.

Dr. J. H. SHAW (Melbourne) said that quick healing and epithelisation might be prevented by excessive and prolonged packing.

Dr. HUGH MITCHELL (Melbourne) mentioned that the ears of slum children admitted for operation after a period in hospital for a time sometimes dried up so that operation was unnecessary. He attributed this to good diet containing fresh fruit and vegetables. Mastoid and chronic otitis media cases, he said, were much more common in England than in Australia, probably for reasons connected with diet.

The PRESIDENT said that the incidence of ear troubles in England had dropped since the removal of septic tonsils had been practised, but the number of chronic otitis media cases was still high, probably due to the neglect of treatment in the earlier stages.

Mr. GRAHAM BROWN, in reply, spoke of the importance of having a mucous-lined cavity after operation to preserve the elasticity of the membranes. He said that the tympanic membrane adhered to the bone because the mucous membrane was destroyed. Exposure was an additional factor in making swimming dangerous in the presence of ear troubles.

A paper on

Sphenoidal Sinusitis and the Pituitary Gland

was read by Dr. CLIVE EADIE (Melbourne). He showed several dissected specimens illustrating the close relationship of the sphenoidal sinus to the pituitary gland; this relationship, he explained, was the reason why inflammation in the former could readily involve the latter by lymphatic spread. The sinus infection was of three main types: (1) acute, especially in influenza, in which the pituitary was hyperæmic and therefore active; (2) chronic catarrhal, in which the pituitary would become involved only during acute exacerbations, or if the process became chronic; and (3) chronic suppurative, when definite pus and organisms were present. *Streptococcus viridans* and *Staphylococcus aureus* were the commonest types of organisms found in a long series of cases. Citelli and Pickworth had demonstrated involvement of the hypophyseal system in sphenoidal sinus disease. Dr. Eadie showed records of 12 cases of sphenoidal sinusitis, associated with pituitary dysfunction, on which sphenoidostomy had been performed. The pituitary dysfunctions included genital disorders, loss of weight, headaches, mental changes, apathy, and epileptic attacks: 10 cases showed improvement after operation, and in 1 case the symptoms were relieved by pituitary extract. Sphenoidal sinusitis was found in 2 cases operated on for pituitary tumour. Records were also shown of 5 post-mortem cases. In 3 of these the pituitary was macroscopically and microscopically normal, in 1 atrophied, and in 1 large with hæmorrhagic spots, the sphenoidal sinuses being diseased in each case. Dr. Eadie thought that the importance of this condition was not at present fully realised.

Dr. T. G. MILLAR (Melbourne) read a paper on

Ultra-violet Light Therapy in the Treatment of Laryngeal Tuberculosis

He used a Kromayer lamp, but instead of the usual right-angled applicator he had devised a curved one. His technique was as follows: The throat and larynx were anæsthetised, and the epiglottis hooked forwards by the lamp held in the right hand, with a post-nasal mirror held in the left hand directing the rays exactly on to the lesion. An exposure of from ¼ to 5 minutes was used, daily in institutions and weekly in private practice. The dose was regulated so that no subjective symptoms were produced, giving a non-infective inflammation in from 6 to 8 hours. This stimulated healing by fibrosis, killed the tubercle bacilli, and relieved the pain. The rays penetrated only 1/10th of a millimetre. Hypertrophic lesions responded better than ulcerative ones, and œdematous types responded least. Only certain cases were suitable. There were two main difficulties: (1) direct current was at present necessary; and (2) an experienced laryngologist must perform the treatment. Dr. Millar then showed records of two cases successfully treated. One mild case healed after weekly exposures for three months. The other, grossly involved, was given weekly treatments for two months and then fortnightly for several months, and eventually the lesion healed completely.

SECTION OF PUBLIC MEDICINE

Sir HENRY GAUVAIN (Alton), president of the section, gave an address on

Sea-bathing

He said that in considering the treatment of surgical tuberculosis, sea-bathing had a very real claim to our consideration. Two pioneers in the therapeutic application of sea-bathing were Lettsom and Richard Russell, generally known as "Seawater Russell"

(1687–1759). In the early part of the eighteenth century Russell wrote two books on the efficacy of sea-bathing and sea-water drinking in the cure of various diseases, especially tuberculosis of glands, bone, joints, and skin. He claimed that his observation had shown that fishermen rarely had scrofulous diseases, and that their women had beautiful complexions, good teeth, and sound gums. The value of the associated sun-bathing seemed to have escaped him. Brighton owed much of its popularity to Russell. As time went on, the pleasures of sea-bathing caused its therapeutic effects to be overlooked. Lettsom, however, impressed by Russell's work, founded the Sea Bathing Infirmary, now known as the Royal Sea-bathing Hospital at Margate. Sir Henry pointed out that the Napoleonic wars gave a great impetus to the search for the cure for tuberculosis in France, and investigations ultimately led to the establishment of the first seaside institution at Berck, followed by numerous others. His own interest in and love of sea-bathing dated from childhood, and he attributed much of the good health he had enjoyed to long summer holidays spent on or in the sea. When he started the Cripples' Hospital at Alton, in 1908, he immediately practised sun treatment on the children under his care. And, later, when a marine beach was secured, sea-bathing was started as a therapeutic measure. The seaside branch at Hayling Island was ideal in situation and climate. The whole success of the treatment depended on the ability of the patient to respond to the strong stimuli supplied. Those who did not possess that ability were not exposed to these stimuli until their powers of response had been fortified and attuned. Cases likely to respond very satisfactorily were children of good constitution who, even if their local lesions caused anxiety, could react well. In his view children over the age of five years, with good digestion, who were doing well, were braced by exposure to cold air, and reacted well to natural stimuli, would almost always do better still at the seaside. Marine treatment offered the readiest means of beneficially influencing basal metabolism, which could be greatly increased. The quickened tissue change affected diseased as well as normal tissues, expediting healing processes. The sense of physical well-being, under the combined action of sun, sea air, and sea-water was very valuable as an aid to cure. Sir Henry outlined the procedure adopted with children during and after the bathe, and described the voracious appetites and the vivacity developed.

Dr. D. B. ROSENTHAL (Melbourne) opened a discussion on the

Incidence of Pleural Effusion in Artificial Pneumothorax

He said that the limitations of the application of artificial pneumothorax (A.P.) in the treatment of pulmonary tuberculosis depended on the stage of the disease, and on complications that might arise due in part at least to the treatment itself. Of these latter, the commonest and the most upsetting to both the patient and the physician was the development of a pleural effusion. The presence of fluid in a pneumothorax space might be attended by no untoward effects, but three undesirable sequelæ were recognised. They were (1) great thickening of the pleura, (2) premature obliteration of the A.P. space by organisation of the fibrin in the fluid, and (3) the change of the fluid to pus. Dr. Rosenthal had attempted to assess the various ætiological factors which might, either singly or together, have played a part in the development of fluid, and advanced the thesis that trauma to the pleura, in one way or the other, was the main provocative cause. Briefly reviewing the reported incidence of effusions, he pointed out that until reports were more carefully standardised, any accurate estimate was impossible. Some observers included small effusions in their figures, whilst others included only those large enough to cover the diaphragm or to require aspiration. The figures submitted by most authorities suggested that pleural effusions occurred in about 50 per cent., and tuberculous empyema in 5 to 10 per cent. of all cases of A.P. Of a series of 629 patients admitted to Gresswell Sanatorium in two years from April, 1933, to April, 1935, 595 were suffering from pulmonary tuberculosis, and 54 received A.P. therapy as part of their treatment. Of these 41 developed effusion—i.e., 76 per cent.; but if one excluded those in whom only a very small "puddle" of fluid formed, the number of effusions of clinical importance was 23—i.e., 43 per cent. of the total.

Each case had been carefully examined by fluoroscopy and by study of the radiogram for adhesions. The occurrence of a febrile reaction at the time of the appearance of each effusion was noted, in an attempt to assess the infective, as distinct from the traumatic, factor in the causation of effusion. These were not mutually exclusive; the presence of pyrexia at the time did not exclude trauma, to which it may have been secondary. It was interesting to note that adhesions of some degree were present in 46 out of the 54 cases. These ranged from fine strands to massive bands holding the lung to the chest-wall over a considerable area. In 4 cases no fluid and no adhesions were found; 4 had fluid and no adhesions; 9 had no fluid but adhesions; and 37 fluid and adhesions. Wide variation was noted—from 1 to 64 weeks—in the period elapsing between the establishment of A.P. and the appearance of fluid. Very small effusion, and those that became purulent—the least and the most important groups respectively—showed a tendency to earlier appearance than did the rest.

The present position of those in the series in whom A.P. was originally established was as follows: 30 were being continued; 7 were abandoned because adhesions prevented satisfactory collapse; 10 discontinued refills because of the presence of adhesions together with pleural effusion; and 7 discontinued refills because of the development of pyothorax. The only deaths in the series were 2 of the 7 cases of empyema.

The various ætiological factors were then considered in turn. Trauma to the pleura might arise from (1) repeated puncture; (2) introduction of a foreign body (including air) into the pleural space; (3) high intrapleural pressures; and (4) rupture of adhesions. Dr. Rosenthal discussed the various types of adhesions, and showed radiograms demonstrating cases of rupture of each type. Depending on the type of tissue involved, the results of rupture might cause a very small effusion, a larger serous effusion, or a purulent effusion. He mentioned that in intentional rupture of adhesions (Jacobaeus' operation) effusion occurred in about 50 per cent. of cases, and empyema in about 10 per cent. He thought that the number of cases of tuberculous infection of the pleura (unassociated with trauma) was small, a conclusion drawn from the mode of onset of the effusions, and from the comparison of the figures from the A.P. group with the "non A.P." group—43 per cent. and 7 per cent.

respectively. Acute exacerbation of disease in the contralateral lung had not been experienced following the appearance of fluid in the A.P. space. If indeed this was frequent, the development of fluid would in itself be an indication for reviewing the treatment. Climatic effect was considered to be of little moment. Recently Pisani and Smejkal had claimed that calcium gluconate was effective in preventing effusion in A.P., but he had been unable to confirm their results. In 16 of his cases of A.P. 8 received calcium and 8 served as controls, the cases being taken alternatively. Of the cases receiving calcium, 1 had no effusion, 5 had a small effusion, and 2 needed aspiration; of the 8 controls, 4 had no effusion, 3 had a small effusion, and 1 needed aspiration. In conclusion, he said that in his view small effusions were due to trauma only, whilst larger effusions were due to trauma plus infection; a relatively small proportion of effusions was due to a tuberculous pleurisy not associated with trauma. He advised conservative treatment, particularly avoidance of "compression" of the lung by use of positive intrapleural pressures. Partial collapse was always "selective," and the best results were obtained by adopting the technique of what had been aptly termed "hypotensive" pneumothorax. The word "compression" should be abandoned in favour of "collapse"; even better was Gravesen's conception of "relaxation" therapy. When air-replacement was practised it should be performed as *infrequently* as possible.

Dr. A. J. COLLINS (Sydney) said that effusions were not always proved to be tuberculous, even the guinea-pig test being negative. The nature of those effusions which were not aspirated was speculative. He agreed with Dr. Rosenthal that many who developed fluid had adhesions; but this did not necessarily associate the two. He preferred to think of the condition as being due to an extension of tuberculous disease to the pleura. The presence of adhesions certainly indicated past pleurisy. Trauma might cause contusion of the chest wall, and convert a dry pleurisy into a pleurisy with effusion. At the Royal Prince Alfred Hospital the incidence of effusions was about 54 per cent. He agreed that trauma played a very important part in their ætiology.

Dr. D'ARCY COWAN (Adelaide) preferred a dry A.P. He agreed that adhesions were usually present with effusions, and advised gradual alteration in intrapleural pressure, when this was desirable. He also suggested that re-expansion of the lung should be made a gradual process, as rapid expansion might cause effusion. He recommended the more general use of tuberculin in treatment, associated with A.P., but had had no success with calcium.

Dr. J. BELL FERGUSON (Melbourne) regarded effusion in A.P. as a common, worrying complication. He thought the determining factors were the presence of adhesions and high intrapleural pressures. He agreed with the treatment outlined by Dr. Rosenthal. When pus was present, he advocated the use of Metaphen, 1 : 3000 in olive oil.

Dr. B. ELWELL (Brisbane) spoke of the gravity of effusion complicating A.P. He advised the use of tuberculin with A.P.

Dr. A. WALKER (Sydney) found it difficult to believe that effusions were ever other than exudates. He thought that a large effusion was a somewhat sinister thing, and agreed with Dr. Rosenthal that aspiration should be as infrequent as possible.

Dr. H. WATSON (Melbourne) and Dr. W. J. NEWING (Melbourne) also spoke.

Dr. ROSENTHAL, in reply, desired to emphasise his conviction that most of these effusions were tuberculous, but were precipitated by trauma in some form; they were essentially a result of the nature of the treatment.

Treatment of Tuberculous Empyema

Dr. M. P. SUSMAN (Sydney) said that in discussing this subject it was necessary to lay stress on a commonplace—that we were dealing with a tuberculous patient and not just a local focus. Constitutional treatment was therefore essential throughout—including dietetic, hygienic, and medicinal measures. Each patient required individual treatment. Minor surgical procedures included aspiration, with or without air replacement and irrigation, and oleothorax. Major surgical operations consist of (1) intercostal drainage, open or closed; (2) thoracotomy and drainage; (3) phrenic avulsion, either alone or supplementing other procedures; (4) thoracoplasty, partial or complete; (5) rib resection and excision of granulation tissue and thickened pleura to bring close contact with visceral pleura.

The principles of treatment might be divided into general and special. General measures included (*a*) the avoidance of secondary infection or, if it occurred, its prompt and adequate treatment to minimise constitutional and local damage; and (*b*) the relief of symptoms, especially those due to mechanical causes, such as a large collection of fluid or a valvular pneumothorax. Special measures depended on two possibilities: (1) if the underlying lung was apparently healthy, the aim was to obliterate the empyema cavity by getting the lung to expand; (2) if the lung was diseased, and especially if there was cavitation, the pulmonary lesion had to be treated as well as the empyema, so that the aim was to keep the lung collapsed. It was thus clear that treatment was determined by the state of the lung or lungs, and the presence or absence of pyogenic infection. For the purpose of treatment cases could be considered under four groups: (1) no signs of pulmonary tuberculosis and no pyogenic organisms in the empyema; (2) pulmonary tuberculosis known to be present, but no pyogenic organisms in the empyema; (3) no signs of pulmonary tuberculosis, but pyogenic organisms present in the empyema; (4) pulmonary tuberculosis known to be present, and pyogenic organisms present in the empyema. The number of patients in groups 1 and 3 was much smaller than in groups 2 and 4. Dr. Susman detailed the appropriate treatment for each of the four groups describing illustrative cases. In group 1, he said that the important thing was to get the thoracoplasty done if it were necessary before secondary infection occurred. He discussed briefly pleural lavage, oleothorax, intercostal drainage, and thoracoplasty, and reviewed the results of treatment. He believed that the mortality of tuberculous empyema was between 30 and 50 per cent.

Dr. A. WALKER spoke of the gravity of tuberculous empyema. He thought conservative treatment was carried too far, and urged the adequate treatment of pleural effusions before they became frankly purulent. He urged the need for the physician in charge to keep an open mind in respect of treatment.

Dr. H. SEARBY (Melbourne) said that more coöperation between the surgical clinics and the sanatoria without operating facilities was desirable. He did not advise thoracoplasty in group 1 of Dr. Susman's classification. In group 2, if the lung tended to

re-expand whilst treatment was in progress, the condition was self-curative. Group 3 was difficult to treat satisfactorily. Rib resection appeared to give adequate drainage. He advised conservative treatment for months before thoracoplasty, but was pessimistic of the outcome.

Dr. L. DOYLE (Melbourne) thought that the essential factor was to bring the chest wall down to the lung; it was important to induce the correct mental outlook of the patient before surgical treatment was undertaken.

Dr. G. FOREMAN (Melbourne) discussed details of the technique of thoracoplasty. He thought that broncho-pleural fistula was commoner than the figures suggested.

Dr. BELL FERGUSON considered that the physician was sometimes too conservative in treating these cases.

Dr. A. PENNINGTON (Melbourne) referred to his experiences in the bacteriological investigations of these fluids, and Dr. D'ARCY COWAN suggested irrigation of the pleural space by saline as a preliminary measure.

Dr. ROSENTHAL agreed that lavage of the pleural space should be performed first with a bland fluid, such as saline, to which eusol could be added. He thought that oleothorax was frequently responsible for the failure of re-expansion later, and deprecated the use of oil in the presence of broncho-pleural fistula.

In reply, Dr. SUSMAN thought that open drainage was quite safe. If the lung would not expand, he advised early thoracoplasty in group 1. In group 2 there was more doubt. In answer to Dr. Doyle, he said that he considered local anæsthesia unsatisfactory for thoracoplasty.

SCOTLAND

(FROM OUR OWN CORRESPONDENT)

MEDICAL CURRICULUM AT EDINBURGH

AT a meeting of the general council of Edinburgh University, Principal Sir Thomas Holland spoke of the reform of the curriculum as a matter of considerable public interest. The idea of expecting a man to be a general practitioner in science or engineering, had, he said, long been given up, but the average graduate in medicine—as in divinity—was still expected to be a safe general practitioner. At Edinburgh University a committee has been at work for some time planning reforms in the curriculum and many alterations in the methods of teaching have been made during the past few years. The teaching of physiology, for example, has been greatly changed. The various medical courses are being continually altered in an attempt to keep the school in tune with the changing and developing needs of both medical science and medical practice. An extra year added to the medical course would add 20 per cent. to the student's outlay for a medical degree, which was already expensive compared with that of other professions. A rash attempt to raise the standard to meet the demands of all the teachers would merely defeat the real object all had in view. In view of the limited accommodation in some of the laboratories and in the resources for clinical training at the Royal Infirmary, the university has been unable to accept more than one-half of the applicants who could show the basic educational standard required to undertake a medical training of university degree standard. The applications were now subject to scrutiny by a special committee, and preference was usually given to those with the higher qualifications. During the session 1934–35, 180 men and 35 women started their medical course, while the total number of matriculated medical students was 1162 men and 166 women. The total number of matriculated students for all faculties was 3991.

The annual expenditure of the university shows little change from year to year. In 1934 it amounted to £294,264. In their report the finance committee reiterate the need of endowment of additional chairs, lectureships, laboratory equipment, library, fellowships, scholarships, and bursaries, and of funds for research and for general maintenance.

IRELAND

(FROM OUR OWN CORRESPONDENT)

THE IRISH HOSPITALS SWEEPSTAKE

THE draw of the sweepstake on the Cambridgeshire Race, being the sixteenth sweepstake held in aid of the Irish hospitals, took place last week. Despite gloomy prophecies the total receipts, and consequently the funds to accrue to the hospitals, showed an increase over the previous sweepstake held last June. The amount which will be handed to the National Hospital Trustees as a result of this sweepstake will be over £400,000. The total amount, from the sixteen sweepstakes from November, 1930, to June, 1935, collected for the hospitals was £8,367,002. In declaring the draw open Lord Powerscourt, chairman of the Associated Hospitals Committee, stated that the report of the Hospitals Commission containing recommendations for the disbursement of funds to the hospitals was now in the hands of the Minister for Local Government and Public Health, and it would soon be printed and made public. Until the Minister had time to study and approve the recommendations grants for the carrying out of extensive schemes could not be made. At present, however, the Minister was allowing grants to meet the deficits on the working of certain hospitals. The solution of the main problem, an adequate hospital scheme for the whole country, could not be undertaken until a large sum of money was in hand, and that was why no substantial grants were being made at present. Lord Powerscourt's clear statement should put an end to the suggestions made in certain quarters that the Government was holding up the money for some sinister purpose. The funds are in the hands of trustees, and any moneys not invested in trustee securities are on deposit in the Bank of Ireland.

ROYAL WORCESTER INFIRMARY: CONTRIBUTORY SCHEME.—This hospital has been overhauling the constitution of its contributory scheme in view of the fact that since the extended services of the hospital came into full operation there has been a deficit on the maintenance account of some £3000 per annum. The population served by the scheme is roughly 100,000, of whom about 22 per cent. are members, compared with an average of 28 per cent. in schemes throughout the country. The income thus raised is nearly £10,000 a year as compared with £14,000 a year from the average scheme of comparable size. It was recommended that new rates of contribution and a revised income limit scheme as recommended by the British Medical Association should be adopted whereby adult single members pay 3*d*. per week instead of 2*d*.; single persons with an income of more than £200 are excluded, but family men with an income of up to £300 a year are admitted. It is hoped that the changes will bring in another £2000 a year.

CORRESPONDENCE

ATTITUDE OF SURGERY TO HÆMATEMESIS

To the Editor of THE LANCET

SIR,—I have been much interested in studying Mr. Gordon-Taylor's address and his views of the place of surgery in the treatment of hæmatemesis from chronic peptic ulcer. My own views were expressed in a lecture published in THE LANCET of August 12th, 1933 (p. 335), but as this is over two years ago they must already be considered out of date. I do not wish to take any part in the statistical battle which is perennially fought out between the results of medical and surgical treatment. It is sufficient to say that my own experience shows that I have probably been fortunate (or, at any rate, that my patients have) for the result has nearly always justified my optimistic prognosis in these cases. But good fortune may not last and one must be prepared for the necessity to trim one's sails to a less favourable wind.

I should like, however, once more to stress two facts with which I hope that most of my colleagues, both medical and surgical, will agree. First, that serious hæmorrhage is a relatively rare complication of chronic peptic ulcer, especially in patients under forty. And, secondly, that acute ulcer is at least as common a cause of hæmorrhage (in my own experience a good deal commoner) as chronic ulcer. A further relevant fact, based on post-mortem study, is that acute ulceration may occur in the presence of chronic ulcer and, where this is the case, any hæmorrhage is as likely (I think more likely) to be due to the acute as to the chronic ulcer. Clinical experience can tell us nothing of the frequency of such hæmorrhages, and, although they have certainly caused death in some cases, they may be quite rare. But the possibility of an acute gastric ulcer causing a hæmorrhage in a patient who is known to have a chronic duodenal ulcer is not mentioned by Mr. Gordon-Taylor; yet it is a possibility which is worth bearing in mind and it has frequently deterred me from advising surgery in cases that have come within the indications which Mr. Gordon-Taylor has laid down.

Mr. Gordon-Taylor briefly mentions having operated on a few acute peptic ulcers but gives no details. Now I have been brought up to believe that the discovery of an acute ulcer at operation is always difficult and often impossible. Experience of autopsies on such cases would certainly support such a view. To me it seems fundamental that there should be no doubt whatever on this score and I should be grateful if Mr. Gordon-Taylor and other surgeons would give us their views on the possibilities of the surgical treatment of bleeding acute ulcers. If I am right in supposing that such a hæmorrhage is not very uncommon even in the presence of a chronic ulcer we can really never be *quite* certain of Mr. Gordon-Taylor's primary postulate (with which everyone will agree) that "almost the only pathological state which justifies urgent surgery is that of bleeding *from* (my italics) a chronic ulcer." And if surgery becomes more frequent as the result of Mr. Gordon-Taylor's skilful advocacy we may from time to time meet with the experience, not unfamiliar in an earlier age, of a "successful" operation failing to control the hæmorrhage.

In conclusion may I emphasise that I am seeking knowledge and that what I have written is not intended to imply any criticism of, or fundamental disagreement with, Mr. Gordon-Taylor's extraordinarily able contribution to a problem which closely concerns the physician, the surgeon, and the general practitioner.

I am, Sir, yours faithfully,

London, W., Oct. 26th. MAURICE E. SHAW.

To the Editor of THE LANCET

SIR,—I quite understand now that the peroration in Mr. Gordon-Taylor's article should be read in conjunction with the more moderate views expressed in the body of his paper, and that the flight of fancy went beyond his opinions and his practice. It is a dangerous latitude in an authoritative article and it is to be hoped that others will not take it literally.

I am sincerely sorry that my letter should have hurt Prof. Finsterer's many friends in this country. I can assure them that I did not intend to impute any lack of integrity when criticising his conclusions and statistics, and I trust that this will be understood. But his conclusions include such statements as "any hæmorrhage from an ulcer is almost as urgent as a perforation," and "operation for acute hæmorrhage gives the same good results as operation for non-bleeding ulcer," and one is entitled to regard critically the author of these sentences. Surely his friends who admire his technique would not follow him in these views. His statistics give 39 cases of severe hæmorrhage in which gastrectomy was performed within 48 hours with one death. There is no indication in his article that these cases were selected, and in view of his opinions quoted above one accepted them as being consecutive unselected cases of severe hæmorrhage. But I hear that Prof. Finsterer is a surgeon who is not attached to a hospital and his cases would have been selected previously by the general practitioners. Physicians may see in their practice a series of cases of severe hæmorrhage without a death, but they know that fatalities occur in their hospital wards. In referring to Prof. Finsterer's statistics the circumstances to which they apply should be made clear. If surgical technique can uniformly achieve these results in all cases of ulcer-hæmorrhage, why has it not done so? Then the problem would have ceased to exist.

The fatalities from ulcer-hæmorrhage are practically confined to a small group of cases. I believe that in recent years these cases have not been operated upon sufficiently often, or sufficiently early, but this must not be corrected by operating too widely. It is our duty now to attempt to recognise these cases and to recognise them as early as possible. It only partly solves the problem to wait for indications of the persistence of copious bleeding. Altogether it is clearly necessary that severe ulcer-hæmorrhage should be studied afresh.

I am, Sir, yours faithfully,

H. LETHEBY TIDY.

Devonshire-place, W., Oct. 28th.

PROTEIN SHOCK FOR UNDULANT FEVER

To the Editor of THE LANCET

SIR,—I have read with interest the notes of the case of undulant fever treated by protein shock, reported by Dr. Beaumont and Dr. Page in your last issue. The severity of the reaction produced by a T.A.B. vaccine injection intravenously is largely a question of dosage. In the series of cases of undulant

fever treated by protein shock therapy which I reported in THE LANCET of June 3rd, 1933 (p. 1177), the initial dose of the T.A.B. vaccine was generally 50 million organisms, though in special cases the dose was as low as 20 million. In none of these had I any serious upset.

Since then I have continued to use protein shock therapy regularly in cases of undulant fever coming under my care. In a series now of over twenty treated with varying doses of T.A.B. vaccine I have had no reactions of an alarming nature and the results have been consistently good. I feel confident that with due caution in dosage protein shock therapy can be used with great advantage in the routine treatment of cases of undulant fever without causing undue anxiety.

I am, Sir, yours faithfully,

SINCLAIR MILLER.

Harrogate Investigation Clinic, Oct. 28th.

A PECULIAR BODILY DISPROPORTION

To the Editor of THE LANCET

SIR,—Whilst I am not in a position to express an opinion comprising the general population in respect to the "peculiar bodily disproportion" about which Dr. Piney is solicitous, I can at any rate refer to the results of some 25 years' investigations of a special character which have some bearing on the subject. Together with their physiological capabilities, the anthropometry of athletes has engaged my attention and in the whole of my experience I have not seen a single example in whom the leg length was *not* more than 50 per cent. of the total body length. In the case of track athletes, the disproportion—to use Dr. Piney's term—is generally considerable; and even in the case of long-distance cyclists who have relatively short lower limbs the relation is still maintained.

So far I know of no example of a death under an anæsthetic having occurred in any one of this considerable number of young men with whom I have been acquainted; nor, although suicidal potentiality or mental instability cannot, I suppose, be excluded, have I heard of one example of felo de se or of admission to a lunatic asylum.

I am, Sir, yours faithfully,

Brook-street, W., Oct. 26th. ADOLPHE ABRAHAMS.

THE WAR MENTALITY

To the Editor of THE LANCET

SIR,—The appearance in your issue of Oct. 19th (p. 907) of the letter addressed to the statesmen of the world from the committee for war prophylaxis of the Netherlands Medical Association must have pleased a great many members of our profession. At the present time, when the international situation is fraught with such grave possibilities, it is the plain duty of each and every sane human being in the world to do his or her bit in the cause of peace.

As a profession we are pledged to the alleviation of suffering and the saving of life, and at a time when the whole trend of medical science is in the direction of preventive therapy, a situation has arisen which bids fair to threaten the lives of vast numbers of our species and the health of countless more. Surely this is a position in which the medical profession can and should take a strong stand. The education of the people is the surest way to peace, and here we are in a peculiarly privileged position in the face of that confident intimacy which exists between doctor and patient, extended as is so often the case to the patient's relatives and friends. Here we have the opportunity for propaganda of the most useful type, in which we can do our share in bringing about an enlightenment of the people as a whole.

One would like to see some such body as the committee for war prophylaxis set up in this and in other countries, and one would like to see the churches and the schools combine with such bodies in a common effort to bring the peoples of the world as individuals and as groups to a sane outlook on international affairs and a resolute expurgation of the idea of war as an instrument of economic or of political negotiation.—I am, Sir, yours faithfully,

Ashwell, Herts, Oct. 23rd. J. H. MOYNIHAN.

ASSOCIATION OF INDUSTRIAL MEDICAL OFFICERS

To the Editor of THE LANCET

SIR,—I shall be obliged if you will allow me to correct certain misconceptions that have arisen in connexion with the announcement sent to you, and published in your issue of Oct. 5th (p. 808), concerning the formation of the Association of Industrial Medical Officers. It was not intended to imply, nor was it stated, that this association replaces and continues the work of the advisory medical committee of the Industrial Welfare Society, for both bodies have sprung from the original membership of the pre-existing Council of Industrial Medicine. It was incorrect to state that the members of the association "continue to constitute" the advisory committee, for though many of the members of the former, including myself, have been members of the latter since its formation and continue to give their services to it, the advisory committee contains also a number of other medical practitioners whose interest in industrial medicine is of a more general or less active nature. The committee of the Industrial Welfare Society is largely an advisory body, whereas this association exists for mutual study and research, and its membership is limited to those actively engaged in industrial medicine. Close coöperation between the two bodies has been arranged.

I am, Sir, yours faithfully,

N. HOWARD MUMMERY,
Chairman, A.I.M.O.

London, Oct. 24th.

GERMICIDAL PROPERTIES OF MERCURY PREPARATIONS

To the Editor of THE LANCET

SIR,—In your issue of Oct. 19th (p. 917) Drs. Reynolds and Stothart draw attention to a real weakness in the technique of determining germicidal efficiency. It so happens that this matter is the subject of a paper by us accepted on Sept. 3rd for publication in the next issue of the *Journal of Hygiene*. Therein we believe the true explanation is given, based on colloid-chemical considerations.

We are, Sir, yours faithfully,

JOHN GEORGE BAUMGARTNER,
MALCALM DOUGLAS WALLACE.

London, Oct. 24th.

TONBRIDGE COTTAGE HOSPITAL.—On Oct. 23rd Lady Camden opened the new Queen Victoria Cottage Hospital at Tonbridge. It consists of the buildings of a vacated isolation hospital which have been modernised. The estimated cost of the whole scheme is about £18,000, of which £5000 still has to be raised.

PARLIAMENTARY INTELLIGENCE

NOTES ON CURRENT TOPICS

Prorogation and Dissolution

PARLIAMENT was prorogued by Royal Commission in the House of Lords on Oct. 25th until Nov. 19th, and the same night a Dissolution was announced by a Royal Proclamation issued as a supplement to the *London Gazette*. Thus came to an end the Parliament which was elected in October, 1931, with an enormous majority for the National Government. As announced by the Prime Minister (Mr. Baldwin) in the House of Commons on Oct. 23rd, the nomination of candidates in the forthcoming General Election will take place on Monday, Nov. 4th, and the poll on Thursday, Nov. 14th. The new Parliament will meet for the first time on Nov. 26th for the election of a Speaker and the swearing-in of Members. The State opening of Parliament will be on Dec. 3rd.

Dependent Children—Increased Allowances

In the House of Commons on Oct. 24th Mr. ERNEST BROWN, Minister of Labour, moved that the draft of the Unemployment Insurance (Increase of Benefit in respect of Dependent Children) Order laid before Parliament on Oct. 22nd be approved. The Statutory Committee, which was charged with looking after the destinies of the Insurance Fund under Part I. of the Act of 1934, had, he said, made to him a report. The report considered the condition of the fund. The fund was solvent, there was a certain reserve, and the committee, surveying the whole trend of events, had, after casting a mean of eight years in succession, come to the conclusion that, allowing for a certain figure of standard reserve, there was a disposable surplus of nearly £1,500,000. They recommended that the dependents' insurance benefit to children under Part I. of the Act should be raised from 2*s.* to 3*s.* This would affect on the average 240,000 households weekly and an average weekly number of children to the extent of 500,000. The committee had laid down a proviso that there should be an over-all limit of 41*s.* That limit was unique in the insurance system. The other point, which was perhaps just as important from the point of view of a consideration of policy, was that not only should there be this over-all limit, but there should be an actual figure expressed—namely, 41*s.* The effect of this would be twofold. At the moment there were a small number of households with very large families which got more than 41*s.* a week. Some drew as much as 46*s.*, so that if the proviso had been accepted by the Government, if he had not put in an order disagreeing with the proviso, it would have meant an actual cut to a small number of large families of anything up to 5*s.* In the second place, if the "stop" was at 41*s.* there would not be the full allowance to the larger families. The 41*s.* level was struck at a family consisting of five children or more. He had figures showing how the scale would work out in the case of families of more than five without the proviso. This would be the new rate as compared with the old: man and wife and one dependent child, old rate 28*s.*, new 29*s.*; man and wife and two dependent children, old rate 30*s.*, new rate 32*s.*; man and wife and three dependent children, old rate 32*s.*, new rate 35*s.*; man and wife and four dependent children, old rate 34*s.*; new rate 38*s.*; man and wife and five dependent children, old rate 36*s.*, new 41*s.*; man and wife and six dependent children, old rate 38*s.*, new 44*s.*; man and wife and seven dependent children, old rate 40*s.*, new rate 50*s.*; man and wife and nine dependent children, old rate 44*s.*, new rate 53*s.*; man and wife and ten dependent children, old rate 46*s.*, new rate 56*s.* It was estimated that the families under the scheme above the five children level numbered some 10,000 and that above eight there were some 1000 families. The committee in their report did not urge the principle of the over-all limit on financial grounds The 10,000 families with over five children and the 1000 with eight children would make no substantial difference to the financial arrangements. The committee urged it on very grave grounds of public policy. The Government had disagreed with the proviso without in any way deciding for or against the general issue which the committee raised. They had come to the conclusion that that issue, as an issue, should be left open for further consideration, and they had therefore decided not to accept the committee's recommendation that there should be a limit of 41*s.* on the amount of benefit paid in any individual case. He proposed that the new scale should take effect from Oct. 31st, and the first payments would be made on Nov. 7th and 8th.

The motion approving the order was agreed to.

Departmental Committee on Workmen's Compensation

In the House of Commons on Oct. 24th Mr. GEOFFREY PETO asked the Home Secretary the names of the committee on the operation of the Workmen's Compensation Act in relation to the settlement of claims by the payment of lump sums, the position of medical referees, miners' nystagmus, and other matters. In reply Captain WALLACE gave the following list of the names of the committee and the terms of reference:—His Honour Judge Stewart (Chairman); Mr. H. E. Allen (Secretary of the North Wales Coalowners' Association); Mr. R. R. Bannatyne, C.B. (Assistant Under-Secretary of State, Home Office); Dr. J. C. Bridge, C.B.E. (Senior Medical Inspector of Factories); Dr. J. Gilmour (Regional Medical Officer, Department of Health for Scotland); Mr. F. Holroyd, J.P. (Senior Vice-President, National Confederation of Employers' Organisations); Mr. Joseph Jones, C.B.E., J.P. (President, Mine Workers' Federation); Mr. W. Kean, J.P. (General Secretary, National Union of Gold, Silver, and Allied Trades); and Sir Walter Kinnear K.B.E. (Controller, National Health Insurance Department, Ministry of Health). The terms of reference were given as follows:—"To inquire into the arrangements at present in operation with a view to the restoration of the working capacity of persons injured by accidents, and to report as to what improvements or developments are desirable, and what steps are expedient to give effect thereto regard being had to the recommendations made in the report issued by the British Medical Association in February, 1935, on 'Fractures'."

HOUSE OF COMMONS

WEDNESDAY, OCT. 23RD

Ex-Service Men and Hospital Treatment

Sir P. HARRIS asked the Minister of Pensions whether it would require legislation in order to give the promised concession to ex-Service men entering hospitals, or whether it could be carried out by administrative action, and, if so, from what date would such action become operative.—Major G. F. DAVIES, Lord of the Treasury, replied: No legislation will be necessary. The concession will take effect as soon as the necessary instructions can be got out, which should be within the next ten days.

THURSDAY, OCT. 24TH

National Health Insurance and Maternity Benefit

Mr. BUCHANAN asked the Minister of Health if he was aware that great hardships had been caused among numbers of households where the father had been out of work for some time and he had not a certain insurance record, and, as a result, had lost his title to maternity benefit; and if he would take steps to have this benefit granted to all, despite the period of unemployment.—Sir KINGSLEY WOOD replied: I am aware that cases have arisen in which title to maternity benefit has been lost by reason of prolonged unemployment, but the hon. Member will recall that in the National Health Insurance

and Contributory Pensions Act of the present session provision was made under which the title to maternity benefit will no longer cease with the expiration of the free insurance period but will be retained so long as insurance is continued on proof of prolonged unemployment. Further, the provision in the Act under which arrears due to unemployment are in future to be completely excused will prevent any reduction of maternity benefit by reason of unemployment.

Electric Welding and Health of Workers

Miss WARD asked the Home Secretary whether, in view of the use of electric welding as an industrial process, consideration had been given to the question of the effect on the health of the workers so engaged.—Captain WALLACE, Under-Secretary, Home Office, replied: Certainly, and steps have been taken with a view to preventing injury to health. I may refer in this connexion to Number 18 of the Shipbuilding Regulations under the Factory Acts, requiring adequate ventilation, and to the Factory Department Memorandum (Form 329) on Electric Arc Welding.

Spahlinger Bovine Vaccine

Mr. PETHERICK asked the Minister of Agriculture if he had received a report on the tests of the Spahlinger treatment of tuberculous cattle carried out by His Majesty's Government in Northern Ireland, and if he could make a statement regarding his intentions in relation thereto.—Major DAVIES replied: My right hon. friend has read the report with much interest. It is now being examined by the Committee on Tuberculosis appointed jointly by the Medical Research Council and the Agricultural Research Council. The views of the committee in detail will not be available for some days, but it is understood that they will probably recommend that, arising out of the report, further investigations should be undertaken in Great Britain. Any such recommendations will be promptly and sympathetically considered by my right hon. friend.

Drunkenness Statistics

Mr. ISAAC FOOT asked the Home Secretary the number of proceedings and convictions for drunkenness in England and Wales during the calendar year 1934.—Sir JOHN SIMON replied: The figures of proceedings and of convictions for drunkenness in England and Wales during 1934 were, respectively, 46,293 and 39,748.

Pensioners and Health Insurance

Sir MERVYN MANNINGHAM-BULLER asked the Minister of Pensions if he was aware that pensioners, in some instances, through ignorance or neglect, failed to maintain or make certain of their position in health insurance and so lose or endangered their title to benefit and contributory pension; and whether he would take steps to enable them to ascertain or establish their rights.—Mr. R. S. HUDSON replied: Yes, Sir. Cases of the kind referred to have come to my notice. I am glad to say that with the coöperation of my right hon. friend the Minister of Health special arrangements have now been made to meet them as far as possible. For this purpose pensioners who are in any doubt as to their position in health insurance will be invited to communicate full particulars of their cases to the chief area officers of my department by whom they will be placed before the Ministry of Health. Special notices are being sent out, and in addition instructions will be given to each pensioner in his pension book.

Pensioners and Hospital Treatment

Sir MERVYN MANNINGHAM-BULLER asked the Minister of Pensions whether he was aware that many pensioners who had lost regular work through having to undergo treatment for their war disabilities in hospital were anxious to know, after a long stay in hospital, if they would be able on discharge to regain employment; and whether he could arrange with the Ministry of Labour to assist them to regain employment.—Mr. R. S. HUDSON replied: Yes, Sir; and I am glad to say that with the help of my right hon. friend the Minister of Labour, arrangements have been made whereby on receipt of a form of registration from a patient who is about to be discharged from hospital, the employment exchange nearest to his home will take all possible steps to secure his prompt return to employment, either with his former employer or otherwise. I may add that I have issued a circular (copies of which have been placed in the library) to all war pensions committees throughout the country calling for special attention to the points raised in this and the last question, and inviting their active coöperation.

THE SERVICES

ROYAL NAVAL MEDICAL SERVICE

Surg. Vice-Admiral Sir Reginald Bond has been awarded a Good Service pension of £100 a year, from Sept. 23rd, in the vacancy created by the death of Surg. Vice-Admiral Sir Joseph Chambers.

Surg. Lt.-Comdrs. T. F. Crean to *Pembroke* for R.M. Infirmary, Deal; E. R. Sorley to *Pembroke* for R.N.B.; and J. G. Currie to *Ganges* for R.N. Sick Quarters, Shotley.

Surg. Lt.-Comdr. (D) T. Hunt to *Victory* for R.N. Hosp., Haslar.

ROYAL NAVAL VOLUNTEER RESERVE

Surg. Lt. K. W. Martin to *Victory* for R.N. Hosp., Haslar.

Proby. Surg. Lt. W. J. Heely to *Curacoa*.

Proby. Surg. Sub-Lt. R. F. Hand to be Surg. Sub-Lt.

ROYAL ARMY MEDICAL CORPS

Capt. N. H. Lindsay is placed on the half-pay list on account of ill-health.

Short Serv. Commissions: Lts. (on prob.) L. C. Card and H. C. George are confirmed in their rank.

REGULAR ARMY RESERVE OF OFFICERS

Col. L. M. Purser, D.S.O. (late R.A.M.C.), and Lt.-Col. G. S. Parkinson, D.S.O., having attained the age limit of liability to recall, cease to belong to the Res. of Officers.

SUPPLEMENTARY RESERVE OF OFFICERS

H. D. K. Wright to be Lt.

TERRITORIAL ARMY

Maj. C. Russell, M.C., M.B., R.A.M.C., to be Divl. Adjt., 54th (E. Anglian) Div., vice Maj. W. Shakespeare, vacated.

Capts. R. G. Addenbrooke and R. E. Holme to be Majs.

Capt. A. G. Bryce, having attained the age limit, retires and retains his rank, with permission to wear the prescribed uniform.

T. H. Dockrell to be Lt.

ROYAL AIR FORCE

Squadron Leaders H. McW. Daniel to No. 3 Flying Training School, Grantham, for duty as Medical Officer, and E. N. H. Gray to No. 5 Flying Training School, Sealand, for duty as Medical Officer.

R. A. Cumming is granted a short service commission as a Flying Officer for three years on the active list.

INDIAN MEDICAL SERVICE

Lt.-Col. A. J. H. Russell, C.B.E., M.D., I.M.S., Honorary Surgeon to the Viceroy of India, has been appointed Honorary Surgeon to the King, with promotion to the rank of brevet colonel, in succession to Col. C. A. Gill, I.M.S., who has retired.

The official notification of Oct. 18th, 1929, regarding the retirement of Capt. (now Maj.) J. C. Drummond is cancelled.

Indian Medical Department.—Capt. (Sen. Assist. Surg.) G. F. Duckworth retires, on account of ill-health.

DEATHS IN THE SERVICES

Lt.-Col. RALPH HENRY MADDOX, C.I.E., I.M.S. (retd.), who died on Oct. 18th at Hove, aged 71 years, was son of Rev. R. H. Maddox, rector of Kirkheaton, Yorks. He was educated at Haileybury and Edinburgh, where he qualified in 1887. He entered the Indian Medical Service five years later, served with the Waziristan Expedition, gained the Egyptian medal at Dongola, and was present at the capture of the Sampagha Pass. In 1899 he was appointed deputy sanitary commissioner of Bengal, and later superintendent of jails. He was transferred to Bihar and Orissa in 1912, took part in the European war from 1916–18, and was created C.I.E. in 1919. He occupied the post of inspector-general of civil hospitals in 1921, and retired in 1922. He married Lucy Lilian, daughter of Mr. Walter Wheeler of Belfast.

PANEL AND CONTRACT PRACTICE

London Insurance Committee and its Personnel

AT its annual meeting on Oct. 24th the London Insurance Committee appointed Dr. E. A. Gregg as its chairman for the ensuing year. This is the first time for an insurance practitioner to hold this office; the only previous medical chairman (1929–30) was Mr. T. B. Layton, the otologist. The meeting was attended by the Minister of Health, who is the senior surviving ex-chairman. Sir Kingsley Wood was accompanied by Sir George Chrystal, the new permanent secretary of the Ministry, and by Mr. H. A. de Montmorency, an assistant secretary; and but for an urgent engagement elsewhere Sir Edward Campbell, Parliamentary private secretary to the Minister, who is also a former member of the committee, would have been present. Sir Kingsley, in a happy address, contrasted the position to-day with that when he was chairman eighteen years ago. The increase in the cost of drugs he attributed partly to the increase in the insured population, partly to the development of new and expensive forms of treatment. The cost per head in England was some 58 per cent. above that in Scotland; England was, he feared, in danger of becoming a nation of confirmed medicine drinkers; he would prefer to see people drinking more milk and less medicine.

An Employer's Complaint

"We cannot complete this report without saying that the employer's communications were characterised by an amount of prejudice and lack of balance which is happily rare in these cases, and were not free from a certain disingenuousness. He was impatient of any kind of impartial or judicial investigation into the practitioner's conduct, and when afforded an opportunity of attending the hearing peremptorily refused to do so."

So runs the last paragraph of a report of the medical service subcommittee upon a case in which a practitioner was cautioned as to the need for greater care in future and, with her partner, is to be called upon to rearrange her surgery hours to the satisfaction of the committee.

An insured person, who had been ill for about a week but had not seen her doctor, called with a friend at Dr. A's surgery early on a Thursday evening, when Dr. A had no surgery hour. Dr. A was out, but her partner (Dr. B) was seeing patients in the surgery by appointment. The two girls spoke to Dr. B, who was seeing another patient out, and inquired whether the doctor could see them, but she told them she was seeing patients only by appointment that evening, and the patient construed this as an indication that the doctor would not provide her with treatment. Dr. B was hurrying to finish her surgery work in order that she might attend an urgent call, and while it was made clear to her that the applicant was an insurance patient she did not appreciate that the girl was in need of urgent attention and did not question the patient as to her condition. The patient and her friend said they mentioned the existence of a mammary abscess, but the doctor could not remember hearing any reference to it. The friend suggested their applying to a hospital for treatment and in this suggestion Dr. B, unwisely as it turned out, acquiesced. The patient was admitted to hospital and operated upon the same evening.

Thus there were extenuating circumstances in a case which when raised by the employer looked a very bad one. On the one hand a doctor anxious to get away to an urgent case; on the other a patient who failed to impress upon the doctor that she needed immediate treatment, although she was in pain. The subcommittee pointed out that they had always taken the view that while it is the duty of an insured person to indicate, where possible, whether treatment is required urgently there is also an onus upon the doctor to elicit as much information as possible in order to decide whether treatment is urgently necessary. They thought that Dr. B committed an error of judgment in dealing with the case as she did, and that as a result there was a failure to provide treatment for an insured patient, and consequently that Dr. A had failed, as the result of the action of her partner, to comply with the terms of service. The subcommittee added, however, that while they had no alternative on the facts but to find that there was a failure to provide treatment, they were satisfied by the frank and sympathetic bearing of Dr. B that this was an isolated error of judgment attributable to her anxiety to visit another case which she knew to be urgent.

But what a lot of trouble might have been saved if the girl had sought medical advice earlier instead of waiting until surgical interference was urgently necessary.

PUBLIC HEALTH

Vital Statistics of 1934

IN his Statistical Review of England and Wales for 1934[1] the Registrar-General has to tabulate nearly half a million deaths and some 600,000 births, and to produce from this prodigious mass of material tables which provide for the wants of both national and local authorities, as well as for the exacting needs of the medical statistician and of social workers. From this task he emerges, as usual, triumphant, condensing a wealth of detail into what is—considering the material set out—an astonishingly small space. In the current volume a minor but valuable innovation has been introduced. In previous issues Table 17 has included the crude death-rate for each administrative area of the country—county, county borough, urban and rural district. In view of the well-known fallacies involved in the comparison of crude rates, these particulars are insufficient to allow the local patriot to compare the mortality experience of his own area with that of other areas. To this table the Registrar-General has now added a standardising factor for each area (or comparability factor, as he terms it) so that by a simple multiplication of the crude rate by this factor the standardised death-rate is reached, and differences in the age-constitution of the populations thus overcome. This addition should prove of considerable service. On the whole, the national figures for 1934 are very favourable. The standardised death-rate from all causes was 10·4 per 1000 for males and 8·3 for females, rates which are both below any that have been previously recorded. Comparison of 1934 with the experience of 1921–30 shows that this advantage of the former year lay mainly in its first quarter, to which the relative absence of influenza must have

[1] New Annual Series, No. 14. Tables. Part I.: Medical. 1935. 6s. net.

largely contributed. Of the last dozen years only 1930 has had an equally low death-rate from this cause. Other respiratory causes—bronchitis and broncho-pneumonia—were also somewhat low, while respiratory tuberculosis continued its decline and, in fact, touched another low record—586 deaths per million compared with a level of 721 in 1926–30 and 1208 in 1901–05. Infant mortality also fell below any previously recorded level and for the first time entered the "fifties," the rate being 59 deaths per 1000 live births. That substantial improvement is still possible is suggested by the differences that may be observed between various parts of the country. In 1934 the rate varied from 49 per 1000 in the east and south-west to 66 in the north and 64 in Wales; from 53 in the rural districts to 66 in the county boroughs and 67 in London administrative county. Rather more than half the infant mortality in the country as a whole fell, in 1934, in the first four weeks of life, but even at this period considerable geographical variations exist, the rate for London being peculiarly low. Examination of the death-rates at ages shows that the favourable position of 1934 compared with the last quinquennium, 1926–30, extended to every age-group with the single exception of the years 5–10 at which the rate was unchanged. The absence of decline at these ages is no doubt due in part to the prevalence of scarlet fever and diphtheria in the current year. The death-rate from the former at ages under fifteen was 83 per million as compared with 55 in 1926–30 (both, of course, trifling compared with the figure of 366 in 1901–05 and 2018 in 1871–75); the death-rate from diphtheria in childhood was higher than in any year since 1921, being 402 per million under fifteen years of age compared with 306 in 1921–30. Of other epidemic diseases measles produced a normal, and whooping-cough a rather below normal, death-rate, while the epidemic of cerebro-spinal fever which reached its peak in 1931 continued its somewhat slow decline. From typhoid fever a small residue of deaths still remains—159, or 4 per million inhabitants, in 1934 compared with a rate of 13 ten years ago. The standardised death-rate from cancer has shown no significant change since 1925.

Out-patients at L.C.C. Hospitals

Ever since the large poor-law hospitals in London were appropriated by the London County Council certain groups of cases have been attending for out-patient examination and treatment. In general these attendances have been limited to emergencies, the after-care of in-patients, persons entitled to out-door medical relief, and women attending maternity clinics. For reasons which it is not difficult to divine it has not proved possible to confine out-patient treatment strictly to these classes. Certain poor-law hospitals had already been doing rather more, and the growing reputation of the L.C.C. hospitals since the transfer has led to an increasing resort to them for ambulatory treatment. It is now proposed to extend this treatment to other groups. A patient sent by his own medical attendant for consultation or special examination (X rays, laboratory investigation) will be accepted on an almoner's report that he is unable to obtain for himself the special advice or investigation required. A patient, whether applying on his own or his doctor's initiative, may receive immediate treatment, but shall continue to attend only if the hospital is satisfied that he cannot be adequately treated by his own doctor (or by a district medical officer if he has no doctor of his own) and if the almoner is satisfied that he cannot obtain for himself the required treatment. Should these conditions not be fulfilled the patient is to be referred to his own doctor or to the district medical officer. The appointment of almoners to L.C.C. hospitals has made it possible to ensure that this information is available. The new policy has the approval of the voluntary hospitals committee for London.

INFECTIOUS DISEASE

IN ENGLAND AND WALES DURING THE WEEK ENDED OCT. 19TH, 1935

Notifications.—The following cases of infectious disease were notified during the week: Small-pox, 0; scarlet fever, 2969; diphtheria, 1237; enteric fever, 29; acute pneumonia (primary or influenzal), 646; puerperal fever, 41; puerperal pyrexia, 116; cerebro-spinal fever, 14; acute poliomyelitis, 23; acute polio-encephalitis, 2; encephalitis lethargica, 5; dysentery, 23; ophthalmia neonatorum, 90. No case of cholera, plague, or typhus fever was notified during the week.

The number of cases in the Infectious Hospitals of the London County Council on Oct. 25th was 3052, which included: Scarlet fever, 1089; diphtheria, 1197; measles, 41; whooping-cough, 263; puerperal fever, 16 mothers (plus 8 babies); encephalitis lethargica, 266; poliomyelitis, 16. At St. Margaret's Hospital there were 22 babies (plus 11 mothers) with ophthalmia neonatorum.

Deaths.—In 121 great towns, including London, there was no death from small-pox or enteric fever, 13 (0) from measles, 4 (0) from scarlet fever, 11 (2) from whooping-cough, 25 (3) from diphtheria, 51 (15) from diarrhœa and enteritis under two years, and 24 (3) from influenza. The figures in parentheses are those for London itself.

Measles proved fatal in 5 cases at Manchester, 4 at Middlesbrough, and 2 at Bootle. Liverpool reported 3 deaths from diphtheria; Portsmouth, Salford, Birmingham, and Worcester each 2. Liverpool had 8 fatal cases of enteritis, St. Helens 3, no other great town more than 2.

The number of stillbirths notified during the week was 237 (corresponding to a rate of 36 per 1000 total births), including 48 in London.

OBITUARY

IAN DISHART SUTTIE, M.D., F.R.F.P.S. Glasg.

Dr. Suttie, whose death last week came as a blow to his friends, was well known in London for his work at the Institute of Medical Psychology, where he and his wife had both been on the staff for many years. Son of Dr. William Suttie, an Edinburgh graduate practising in Glasgow, he was born there in 1889, studied at the university, and took his medical degree in 1914. Then for five years he was on war service in France, India, and Mesopotamia, on his return joining the staff of the Glasgow Royal Asylum at Gartnavel where he met Dr. Jane Isabel Robertson who became his wife. For a time he was medical superintendent to the criminal asylum at Perth, an appointment which he gave up when he came south to join the Tavistock Clinic, as it then was. Dr. Suttie described himself as a sociologist and his writings, which appeared mostly in mental and neurological journals, dealt with such subjects as the significance of the sexual instinct, the psychopathic inheritance, the herd instinct, and mental recapitulation. His last book,[1] which has only just appeared, is a critical study of the Freudian psychology in its social application. In his preface to this book Dr. J. A. Hadfield remarks on the

[1] The Origins of Love and Hate. London: Kegan Paul, Trench, Trubner and Co., Ltd. Pp. 275. 10*s.* 6*d.*

objective basis of the work recorded, which is its distinctive feature. The starting point of Dr. Suttie's conception of human life and development is the need for companionship, and upon this need he founds his conception of love and his insistence upon this factor as against the Freudian theory of sex; his views of religion are matriarchal in contrast to the patriarchal view of Freud. The book correlates the author's life study of psychology, sociology, and anthropology.

CHARLES FREDERICK RUMBOLL, M.D. Durh.

Dr. Rumboll, who died at Melksham, Wilts, on Oct. 23rd, was born at Calne in 1859, the son of Charles L. Rumboll of Bedford. Educated at Epsom College, he entered St. Bartholomew's Hospital from which he qualified in 1882. He then took medical degrees at Durham University and in 1886 qualified for the gold medal in the M.D. He was in practice at Melksham for over 40 years and was surgeon to the cottage hospital and local friendly societies. Having become a barrister-at-law of the Inner Temple, he was appointed to the commission of peace and later deputy lieutenant for the county. For many years he served in the 2nd Wilts Volunteers, retiring with the rank of lieut.-colonel. Dr. Rumboll married Edith, daughter of W. H. Cross, J.P. for Middlesex, who survives him without issue.

MEDICAL NEWS

University of Oxford

Dr. John Mellanby, professor of physiology in the University of London, at St. Thomas's Hospital, has been appointed to the Waynflete chair of physiology in the University of Oxford.

Born at West Hartlepool in 1878, Prof. Mellanby is the younger brother of Prof. Alexander Mellanby of Glasgow, and the elder brother of Prof. Edward Mellanby, F.R.S., secretary of the Medical Research Council. He was educated at Barnard Castle School, Emmanuel College, Cambridge, and the Manchester Royal Infirmary. After leaving Cambridge in 1902 he worked at the Wellcome Research Laboratories at Herne Hill. There he started the physiological laboratory, and for two years carried out investigations on biological methods of standardisation and the isolation of diphtheria toxin and antitoxin. He qualified in 1906, gaining the Raymond Horton-Smith prize for his M.D. thesis at Cambridge in 1907. After qualification he held the George Henry Lewes studentship at Cambridge, and devoted himself to physiological research on the coagulation of blood. He was appointed head of the department of physiology at St. Thomas's Hospital medical school in 1909, and was given the title of professor by London University in 1920. In 1929 he was elected a fellow of the Royal Society in recognition especially of his studies on the coagulation of blood and the mechanism of pancreatic secretion. He was editor of *Physiological Abstracts* from 1925 to 1935, and has acted as examiner at the Universities of Cambridge, Oxford, Leeds, and Sheffield, and for the diplomas of the Royal College of Surgeons.

University of Cambridge

Dr. Thomas Shirley Hele, lecturer in biochemistry in the University, has been elected master of Emmanuel College.

An entrance scholarship has been founded at Peterhouse which is restricted to candidates who intend to study medicine. It may be awarded for proficiency in mathematics, classics, natural sciences, or history. Further particulars will be found in our advertisement columns.

Society of Apothecaries of London

At recent examinations the following candidates were successful:—

Surgery.—C. N. Chowdary, Univ. of Durh.; P. D. Lynch, Guy's Hosp.; W. J. Pinto, Univ. of Madras; M. Q. H. Siddiki, Univ. of Leeds; and G. W. van Mentz and G. M. Williams, London Hosp.

Medicine.—R. H. Bembridge, King's Coll. Hosp., and A. Morgan, Univ. of Manch.

Forensic Medicine.—R. H. Bembridge, King's Coll. Hosp.; E. R. Jones, St. Mary's Hosp.; A. Morgan, Univ. of Manch.; and G. M. Williams, London Hosp.

Midwifery.—H. Burrows, Univ. of Manch.; E. M. Craggs, Middlesex Hosp.; F. J. H. D. de Marigny, Guy's Hosp.; M. G. H. Jones and J. R. Rocyn-Jones, Welsh National School of Medicine; M. Q. H. Siddiki, Univ. of Leeds; H. L. W. Sixsmith, Welsh National School of Medicine; R. L. Walmsley, Univs. of Camb. and Leeds; and C. W. Williams, Welsh National School of Medicine.

The following candidates, having completed the final examination, are granted the diploma of the society entitling them to practise medicine, surgery, and midwifery: C. N. Chowdary, E. M. Craggs, A. Morgan, and W. J. Pinto.

Lectures for School Medical Officers

Two lectures for school medical officers on the diagnosis of congenital syphilis will be given by Dr. David Nabarro at the Hospital for Sick Children, Great Ormond-street, London, W.C., on Monday and Tuesday, Nov. 18th and 19th, at 2.30 P.M.

Royal College of Physicians of London

A Leverhulme scholarship of the annual value of £500 will shortly be awarded by the College. The scholar must undertake the investigation of some problem of disease in any branch of medicine. Further information will be found in our advertisement columns.

University of London

The title of emeritus professor of bacteriology in the University has been conferred on Dr. J. W. H. Eyre, formerly professor of bacteriology at Guy's Hospital medical school. Dr. Alexander Haddow has been reappointed Laura de Saliceto student.

University of Reading

At a congregation to be held on Dec. 2nd, when Sir Austen Chamberlain will be installed as Chancellor, the honorary degree of D.Sc. will be conferred on Sir Gowland Hopkins, O.M., P.R.S. Other recipients of honorary degrees will include Monsieur Herriot, Sir Robert Vansittart, Lord Rutherford, O.M., and Sir Joseph J. Thomson, O.M.

Scottish Conjoint Board

At recent examinations of the conjoint board of the Royal Colleges of Physicians and Surgeons of Edinburgh and the Royal Faculty of Physicians and Surgeons of Glasgow the following candidates were successful:—

L.R.C.P., L.R.C.S., AND L.R.F.P. & S.

M. R. Schleifer, S. H. Harrison, M. B. Spiegel, I. J. G. Mowat, Joseph Freeman, Harry Farber, Louis Schmulian, Johannes Hart, M. W. U. Alwi, John Orr, S. J. Lederman, George Boyd, T. R. Murphy, Ruth Schurer, C. S. Parker, Hugh Henderson, H. T. Rachlin, D. H. Abbott, Marta Adolfsson, Louis Landman, David Simon, M. S. Hendriks, R. O. Walker, P. S. Gorlin, G. B. Shirlaw, Sarah L. Mulholland, Otto Moses, Willi Straus, C. J. Greenberg, A. E. Thompson, W. F. M. Unger, F. P. Perera, O. W. Nordesjo, D. S. Abeyagunawardene, John Jamieson, Abraham Berkow, Thomas Miller, J. E. Heller, Herbert Levy, Karl Melzer, Ralph Coff, H. G. Garas, Frances Hunter, Sanmugan Rajendram, Beate Isserlin, Solomon Maranov, Ferenc Kellermann and M. J. Philip.

Tuberculosis Association

A meeting of this association will be held at Manson House, 26, Portland-place, London, W., on Friday, Nov. 22nd, at 5.15 P.M., at which Sir StClair Thomson will speak on tuberculosis of the upper respiratory tract, and Mr. H. R. Bickerton on tuberculosis of the eye. The meeting will be resumed at 8.30 P.M., when Dr. E. L. Middleton and Dr. P. Heffernan will discuss industrialism and tuberculosis.

Society of Chemical Industry

A joint meeting of the London section and the food group of this society will be held in the rooms of the Chemical Society at Burlington House, Piccadilly, London, W., on Monday, Nov. 4th, at 8 P.M., when Prof. I. M. Heilbron, F.R.S., will deliver a Jubilee memorial lecture entitled Chemical Elixirs of Life. He will deal with recent developments in the chemistry of the sterols and related compounds.

National University of Ireland

A travelling studentship in physiology has been awarded to Dr. D. K. O'Donovan, University College, Dublin.

Ministry of Health

Mr. S. F. Wilkinson has been appointed assistant private secretary to Sir Kingsley Wood; Mr. T. W. Williams private secretary to Mr. Shakespeare; and Mr. J. E. Pater private secretary to Dr. MacNalty.

Scholarships for Sons of Medical Men

Two £100 scholarships are again being offered at Port Regis preparatory school to sons of medical men. The examination is being held in March, 1936, and candidates must be under nine years of age at the time of competing. Applications should be addressed to the headmaster, Port Regis, Broadstairs, not later than Feb. 20th.

War Relief in Abyssinia

The British Red Cross Society has received £5000 from Lady Ogle towards the organisation and dispatch of relief to the Ethiopian war zone. The total now in hand is some £19,000, and a small advance ambulance unit will leave London for Abyssinia about Nov. 17th. Further funds are urgently required for the maintenance and enlargement of this unit, and may be sent to Sir Arthur Stanley, British Red Cross Society, 14, Grosvenor-crescent, S.W.1.

Children's Play Clinic at Guy's Hospital

In connexion with the department of medical psychology at this hospital a children's play clinic has been started. Toys are needed for the new venture.

Alford Memorial Cottage Hospital

Sir Lancelot Travers opened a new ward, new quarters for nurses, and an X ray department at this hospital on Oct. 18th. The extensions have cost over £2000, of which £1000 has yet to be raised.

Plymouth City Hospital

The foundation-stone of a new nurses' home for this hospital was laid on Oct. 16th. It is to be a three-storied building and will provide accommodation for 152 nurses. There will be a recreation-room, a library, a dance hall, and a laundry.

Medical Diary

Information to be included in this column should reach us in proper form on Tuesday, and cannot appear if it reaches us later than the first post on Wednesday morning.

SOCIETIES

ROYAL SOCIETY OF MEDICINE, 1, Wimpole-street, W.

TUESDAY, Nov. 5th.

Orthopædics. 5.30 P.M. (Cases at 4.30 P.M.) Mr. H. J. Seddon: 1. Von Recklinghausen's Disease with Scoliosis. Mr. C. Hope Carlton: 2. Use of an Artificial Ligamentum Teres in the Treatment of Recurrent Shoulder Dislocation.

Pathology. 8.15 P.M. for 8.30 P.M. (Bernhard Baron Institute of Pathology, London Hospital, E.). J. O. W. Bland and Dorothy S. Russell: 1. Spongioblastoma Multiforme. Dorothy S. Russell: 2. Spinal and Ventricular Metastases in Spongioblastoma Multiforme. 3. Rare Intracranial Tumours. J. Gilmour: 4. Estimation by Planimeter of Relative Amount of Interstitial Tissue in Parathyroid Glands. Donald Hunter and H. M. Turnbull: 5. Osteomalacia in Various Conditions. F. C. O. Valentine: 6. The Effect of Staphylococcus Toxins on the Leucocytes of Human and Rabbit Blood. A. W. Downie: 7. Complement Fixation with Antipneumococcal Serum and Pneumococcus Polysaccharide. B. Woolf and J. R. Marrack: 8. Cross Reactions of Type II. Antipneumococcus Serum with Synthetic Compounds of Glucuronic Acid. S. P. Bedson: 9. Experimental Psittacosis Pneumonia in Mice. H. Loewenthal and M. G. Pradhan: 10. Colonial Forms of Hæmolytic Streptococci.

WEDNESDAY.

History of Medicine. 5 P.M. Dr. E. J. Holmyard: The Pharmacology of Mediæval Islam. A discussion, opened by Prof. J. R. Partington, will follow.

Surgery. 8.30 P.M. Mr. W. Sampson Handley: Paralytic Ileus in Acute Appendicitis (presidential address).

FRIDAY.

Clinical. 5.30 P.M. (Cases at 4.30 P.M.) Mr. J. E. H. Roberts (with Dr. A. J. Wilson): 1. Calcified Pericardium with Ascites after Pericardiectomy. Mr. J. E. H. Roberts: 2–3. Total Pneumonectomy for Bronchiectasis. 4. Lobectomy for Bronchiectasis. Dr. R. C. Wingfield: 5. Spondylitis Rhizomélique. Dr. Gerald Slot: 6. Cases Illustrating Aurotherapy.

Ophthalmology. 8.30 P.M. (Cases at 8 P.M.) Mr. J. H. Doggart: Fuchs's Epithelial Dystrophy.

WEST KENT MEDICO-CHIRURGICAL SOCIETY.

FRIDAY, Nov. 8th.—8.45 P.M. (Miller General Hospital, Greenwich, S.E.), Dr. Charles Beney: The Chronic, Discharging Ear.

LECTURES, ADDRESSES, DEMONSTRATIONS, &c.

ROYAL COLLEGE OF PHYSICIANS OF LONDON, Pall Mall East, S.W.

TUESDAY, Nov. 5th.—5 P.M., Dr. Daniel T. Davies: Peptic Ulcer (Bradshaw lecture).

THURSDAY.—5 P.M., Dr. J. D. Rolleston: History of the Acute Exanthemata (first of two FitzPatrick lectures).

ROYAL COLLEGE OF SURGEONS OF ENGLAND, Lincoln's Inn-fields, W.C.

MONDAY, Nov. 4th.—5 P.M., Dr. L. W. Proger: Some Diseases of Bone (II.).

FRIDAY.—5 P.M., Dr. A. J. E. Cave: The Anatomy and Physiology of the Human Larynx (II.).

JOINT TUBERCULOSIS COUNCIL.

MONDAY, Nov. 4th (Brompton Hospital, S.W.).—10 A.M., Dr. F. Lee Lander: Demonstration of Pleural Washout. 11.15 A.M., Dr. F. H. Young: A.P. Therapy for Pulmonary Tuberculosis in Ambulatory Patients. 2.30 P.M., Dr. W. E. Lloyd: Tuberculosis in Childhood. 3.45 P.M., Dr. J. L. Livingstone: Chronic Bronchitis and Emphysema.

TUESDAY.—10 A.M., Dr. A. L. Punch: The Value of Lipiodol in Diagnosis. 11.15 A.M., Dr. Clifford Hoyle: Chronic Miliary Tuberculosis. 2.30 P.M., Dr. J. V. Sparkes: Radiological Demonstration. 3.45 P.M., Dr. A. Hope Gosse: Difficulties in Diagnosis of Pulmonary Disease.

WEDNESDAY.—10 A.M., Dr. M. Davidson: New Growths of the Lung. 11.15 A.M., Mr. A. Tudor Edwards: Surgical Treatment of Pulmonary Tuberculosis. 2 P.M., Dr. Cecil Wall: Dry Bronchiectasis. 3.15 P.M., Mr. A. Tudor Edwards: Operations.

THURSDAY.—10 A.M., Dr. G. E. Beaumont: Demonstration of Cases: (*a*) Sedimentation. (*b*) Vital Capacity. (*c*) Sanocrysin and other special drugs. 11.15 A.M., Dr. R. C. Wingfield: Relapse in Pulmonary Tuberculosis. 2.30 P.M., Dr. R. L. Rawlinson: Radiology of the Chest. 3.45 P.M., Dr. Geoffrey Marshall: Methods of Treatment of Pulmonary Tuberculosis and their Indications.

FRIDAY.—10 A.M., Dr. W. D. W. Brooks: Pneumonokoniosis. 11.15 A.M., Dr. E. E. Atkin: Morbid Anatomy of Tuberculous Disease of the Lungs. 2.30 P.M., Dr. L. S. T. Burrell: Treatment of Pleural Effusions and Empyema. 3.45 P.M., Mr. F. C. Ormerod: Bronchoscopy.

SATURDAY.—10 A.M., Mr. J. E. H. Roberts: Surgical Treatment of Pulmonary Suppuration. 11.15 A.M., Mr. J. E. H. Roberts: Operations.

FELLOWSHIP OF MEDICINE AND POST-GRADUATE MEDICAL ASSOCIATION, 1, Wimpole-street, W.

MONDAY, Nov. 4th, to SATURDAY, Nov. 9th.—INFANTS HOSPITAL, Vincent-square, S.W. Mon., Wed., and Fri., at 8 P.M. Course for the F.R.C.S. (Primary) in Anatomy and Physiology.—ST. PETER'S HOSPITAL, Henrietta-street, W.C. All-day course in Urology.—MEDICAL SOCIETY of LONDON, Chandos-street, W. Thurs., 4 P.M., Dr. Norman Haire: Practical Contraception.—Courses and lectures open only to members.

NATIONAL HOSPITAL, Queen-square, W.C.

MONDAY, Nov. 4th.—3.30 P.M., Dr. Carmichael: The Sympathetic Nervous System (I.).

TUESDAY.—3.30 P.M., Dr. Carmichael: The Sympathetic Nervous System (II.).

WEDNESDAY.—3.30 P.M., Dr. Kinnier Wilson: Clinical Demonstration.

THURSDAY.—3.30 P.M., Dr. Carmichael: The Sympathetic Nervous System (III.).

FRIDAY.—3.30 P.M., Dr. Bernard Hart: The Psychoneuroses (V.).

Out-patient clinic daily at 2 P.M.

HOSPITAL FOR SICK CHILDREN, Great Ormond-street, W.C.

THURSDAY, Nov. 7th.—2 P.M., Dr. B. Shires: Treatment of Nævi with Radium. 3 P.M., Dr. W. W. Payne: Diabetes (II.), Treatment.

Out-patient clinics daily at 10 A.M. and ward visits (except on Wednesday) at 2 P.M.

ST. PAUL'S HOSPITAL, Endell-street, W.C.

WEDNESDAY, Nov. 6th.—4.30 P.M., Mr. Kenneth Walker: The Treatment of Malignant Disease of the Genito-urinary Tract.

HAMPSTEAD GENERAL AND NORTH-WEST LONDON HOSPITAL, N.W.

WEDNESDAY, Nov. 6th.—4 P.M., Dr. H. V. Morlock: Diagnosis and Treatment of Intrathoracic New Growths.

SOUTH-WEST LONDON POST-GRADUATE ASSOCIATION.

WEDNESDAY, Nov. 6th.—4 P.M. (St. James' Hospital, Ouseley-road, S.W.), Dr. C. E. Lakin: Demonstration of medical cases.

WEST LONDON HOSPITAL POST-GRADUATE COLLEGE, Hammersmith, W.
MONDAY, Nov. 4th.—10 A.M., Medical Wards, Skin Clinic. 11 A.M., Surgical Wards. 2 P.M., Gynæcological and Surgical Wards, Eye and Gynæcological Clinics. 4.15 P.M., Mr. Green-Armytage: Menstrual Disorders.
TUESDAY.—10 A.M., Medical Wards. 11 A.M., Surgical Wards. 2 P.M., Throat Clinic. 4.15 P.M., Mr. Simpson Smith: Osteomyelitis.
WEDNESDAY.—10.30 A.M., Children's Wards and Clinic, Medical Wards. 2 P.M., Eye Clinic, Gynæcological Operations. 4.15 P.M., Mr. Gibb: Demonstration of Eye Cases.
THURSDAY.—10 A.M., Neurological and Gynæcological Clinics. 12 noon, Fracture Clinic. 2 P.M., Eye and Genito-urinary Clinics.
FRIDAY.—10 A.M., Skin Clinic. 12 noon, Lecture on Treatment. 2 P.M., Throat Clinic.
SATURDAY, 10 A.M.—Medical Wards, Children's and Surgical Clinics.
The lectures at 4.15 P.M. are open to all medical practitioners without fee. Operations and medical and surgical clinics daily at 2 P.M.

KING'S COLLEGE HOSPITAL, Denmark Hill, S.E.
THURSDAY, Nov. 7th.—9 P.M., Dr. Hugh Davies: Radiographic Types of Pulmonary Tuberculosis.

LONDON SCHOOL OF DERMATOLOGY, 49, Leicester-square, W.C.
TUESDAY, Nov. 5th.—5 P.M., Dr. H. C. Semon: Diseases of the Buccal Mucous Membrane.
THURSDAY.—5 P.M., Dr. W. J. O'Donovan: Dermatological Neuroses.

INSTITUTE OF HYGIENE, 28, Portland-place, W.
WEDNESDAY, Nov. 6th.—3.30 P.M., Dr. Reginald Miller: Rheumatism and Heart Disease in Youth.

INVALID CHILDREN'S AID ASSOCIATION.
THURSDAY, Nov. 7th, and FRIDAY.—10.30 A.M. (Drapers' Hall, Throgmorton-street, E.C.), Joint Conference with the Central Council for the Care of Cripples.

UNIVERSITY OF SHEFFIELD.
FRIDAY, Nov. 8th.—3 P.M. (Royal Hospital), Mr. Vincent Townrow: Ear, Nose, and Throat Clinic. 3 P.M. (Royal Infirmary), Dr. Rupert Hallam: Dermatological Clinic. Mr. Wellwood Ferguson: Ophthalmological Clinic.
SUNDAY.—10.30 A.M. (Royal Hospital), Dr. E. Fretson Skinner: Medical Cases. 10.30 A.M. (Royal Infirmary), Dr. Robert Platt: Medical Cases. Mr. T. B. Mouat: Surgical Cases. 10.30 A.M. (Jessop Hospital), Mr. Glyn Davies: Gynæcological Cases.

GENERAL INFIRMARY, Leeds.
TUESDAY, Nov. 5th.—3.30 P.M., Dr. Burrow: Clinical demonstration of cases of disease of the nervous system.

PUBLIC DISPENSARY, Leeds.
WEDNESDAY, Nov. 6th.—4 P.M., Dr. Maxwell Telling: Some Modern Psychological Problems of Practice.

ROYAL INFIRMARY, Manchester.
TUESDAY, Nov. 5th.—4.15 P.M., Mr. John Morley: Malignant Disease of the Thyroid Gland.
FRIDAY.—4.15 P.M., Mr. H. H. Rayner: Demonstration of surgical cases.

HOSPITAL FOR CONSUMPTION AND DISEASES OF THE EAR, NOSE, THROAT AND CHEST, Manchester.
WEDNESDAY, Nov. 6th.—4.30 P.M., Dr. H. R. Clarke: Bronchitis.

ST. MARY'S HOSPITALS, Manchester.
THURSDAY, Nov. 7th.—4.15 P.M. (Whitworth-street West Hospital), Dr. Lapage: Asthma and Allergy in Children.

GLASGOW POST-GRADUATE MEDICAL ASSOCIATION.
WEDNESDAY, Nov. 6th.—4.15 P.M. (Royal Hospital for Sick Children), Prof. G. B. Fleming: Rheumatism in Childhood.

Vacancies

For further information refer to the advertisement columns

Aberdeen County.—Asst. M.O.H. £500.
Aberdeen, Rowett Research Institute, Bucksburn.—Head of Physiology Department. £800–£1000.
Accrington, Victoria Hospital.—H.S. £150.
Bagshot Rural District Council, &c.—M.O.H., &c. £1000.
Birmingham City.—Asst. M.O. for Maternity and Child Welfare. £500.
Bolingbroke Hospital, Wandsworth Common, S.W.—H.S. At rate of £120.
Brighton County Borough Mental Hospital, Haywards Heath.—Asst. M.O. £350.
Cambridge, Addenbrooke's Hospital.—H.P. At rate of £130.
Cancer Hospital, Fulham-road, S.W.—Res. M.O. £200. Also Med. Reg. £150.
Cardiff Royal Infirmary.—H.S. to Ophth. Dept. At rate of £40.
Constance-road Institution, East Dulwich, S.E.—Asst. M.O. £250.
Dreadnought Hospital, Greenwich, S.E.—Receiving Room Officer. At rate of £200.
East Ham Memorial Hospital, Shrewsbury-road, E.—Hon. Physician.
Edinburgh, National Committee for the Training of Teachers.—M.O. and Lecturer on Hygiene for Aberdeen Training Centre. £725.
Fulham Hospital, St. Dunstan's-road, W.—Asst. M.O. £250.
Hastings, Royal East Sussex Hospital.—Asst. Pathologist. £300.
Hôpital et Dispensaire Français, 172, Shaftesbury-avenue, W.C.—Phys. to In-patients.
Hospital for Epilepsy and Paralysis, Maida Vale, W.—Hon. Asst. Physician. Also Hon. Asst. Surgeon.
Hospital for Sick Children, Great Ormond-street, W.C.—Res. M.O. for Country Branch. At rate of £250. Also Res. Anæsthetic Registrar. At rate of £150.
Hospital for Women, Soho-square, W.—Surgeon in Charge of Out-patients.
Hostel of St. Luke, 14, Fitzroy-square, W.—Res. M.O. At rate of £200.
Hull Royal Infirmary.—Cas. O. At rate of £150.
Indian Medical Service.—Commissions.
Jersey General Hospital and Poor Law Infirmary.—Radiologist. £500.
Kingston-on-Thames, Surrey County Mental Hospital.—Jun. Asst. M.O. £350.
Leeds City.—Asst. M.O. for Maternity and Child Welfare £250.
Leeds, Killingbeck Sanatorium.—Sen. Asst. Res. M.O. £350.
Leicester, City General Hospital.—Deputy Med. Supt. £500.
Leicester Royal Infirmary.—Res. Anæsthetist. At rate of £150.
Liverpool City.—Asst. M.O. £500. Also Asst. Clin. Tuber. O. £550.
London Homœopathic Hospital, Great Ormond-street, W.C.—Hon. Asst. Physician.
Manchester, Ancoats Hospital.—Cas. O. At rate of £250.
Manchester, Hulme Dispensary, Dale-street.—Res. M.O. £250.
Middlesex Hospital and Medical School, W.—Two Asst. Med. Registrarships. Also one Otological Registrarship. Each £300.
Mile End Hospital, Bancroft-road, E.—Asst. M.O. £250.
New End Hospital, Hampstead, N.W.—Asst. M.O. £250.
Northampton General Hospital.—H.S. At rate of £150.
Norwich, Norfolk and Norwich Hospital.—Cas. O. £120.
Plymouth, Prince of Wales's Hospital, Greenbank-road.—Res. Anæsthetist and H.S. to Special Depts. At rate of £120.
Prince of Wales's General Hospital, N.—Hon. Physician to Dept. of Physical Medicine.
Princess Beatrice Hospital, Richmond-road, Earl's Court, S.W.—Asst. Surgeon.
Queen Charlotte's Maternity Hospital, Marylebone-road, N.W.—Res. M.O. for Isolation Hospital. At rate of £200. Res. Anæsthetist. At rate of £100. Res. Anæsthetist and Dist. Res. M.O. At rate of £90. Also Asst. Res. M.O. At rate of £80.
Romford, Oldchurch Hospital.—Jun. Res. M.O. £250.
Rotherham Hospital.—H.P. £180.
Royal College of Physicians, Pall Mall East, S.W.—Leverhulme Research Scholarship. £500.
Royal Northern Hospital, Holloway, N.—H.S. and H.P. Each at rate of £70.
St. Helens Hospital, Lancs.—Jun. H.S. £150.
St. Mary, Islington, Hospital, Highgate Hill, N.—Asst. M.O. £350.
St. Pancras Hospital, Pancras-road, N.W.—Asst. M.O. £250.
Sheffield, Jessop Hospital for Women.—Asst. Hon. Surgeon. Also H.S. At rate of £100.
Southampton, Royal South Hants and Southampton Hospital.—H.P. At rate of £150.
Sunderland Royal Infirmary.—H.S. £120.
Swansea General and Eye Hospital.—Cas. O. At rate of £150–£175.
Wakefield, Scalebor Park Mental Hospital.—Asst. M.O. £650.
Walsall General Hospital.—H.P. and Res. Asst. Pathologist. At rate of £150.
West Bromwich County Borough.—M.O.H. and School M.O. £1000.
West End Hospital for Nervous Diseases, 73, Welbeck-street, W.—Registrar. £200. Also two Hon. Med. Psychologists.
West London Hospital, Hammersmith-road, W.—Res. Cas. O. At rate of £100. Also Physician to X Ray (Therapeutic) and Electrical Depts.
Wimbledon Hospital, Thurstan-road, S.W.—Res. M.O. At rate of £150.
Woking and District Victoria Hospital.—Res. M.O. £120.
Woolwich and District War Memorial Hospital, Shooters Hill, S.E.—Two H.S.'s. Each at rate of £100.

The Chief Inspector of Factories announces vacancies for Certifying Factory Surgeons at Bingley (York, West Riding) and St. Annes-on-the-Sea (Lancs.).

A MODERN SCHOOL SANATORIUM.—On Oct. 26th Major-General W. P. MacArthur, R.A.M.C., opened a new sanatorium at Penrhos College for Girls, Colwyn Bay, Prof. Warrington Yorke, M.D., chairman of the board of governors, presiding. The building was designed by Mr. S. Colwyn Foulkes, M.Arch., A.R.I.B.A. The ground floor contains a private room for the resident doctor, a medical inspection room, matron's room, dental room, two four-bed wards, two two-bed wards, one single ward, two bathrooms, and linen room and kitchen. On the first floor there are the same number of wards, bedrooms for doctor and matron, two maids' rooms, three bathrooms, a linen room, and the discharge and fumigation department. The sick-rooms, fitted with vita-glass, are grouped to the south and west, and every bed can be wheeled out on to the terrace or balconies.

NOTES, COMMENTS, AND ABSTRACTS

A STICKIT DOCTOR *

BY N. G. HORNER, M.D.

A PERSON whose life is spent half-way between two callings finds the temptation very great to choose a title such as Medicine and Letters or Some Literary Physicians, or (perhaps even more tempting) The Doctor in Detective Fiction. But, wondering what fresh stones were to be found in so well worked a quarry, I cast about for a topic less hackneyed that might entertain an audience made up largely of people on the threshold of medicine.

Looking back 30 years and more to student days, I remembered a novel that had some popularity among the simple-hearted reading public of that period—"The Stickit Minister," by S. R. Crockett. To a young English ignoramus the title was mildly provocative. Crockett's fellow-countryman, J. M. Barrie, had written a successful book and play, "The Little Minister," so we all knew what a minister meant in that context. It meant a Scotch clergyman. But I had to look up "stickit" in a glossary of Scottish words and phrases which said: "Bungled and spoiled in the making." One of Webster's dictionaries went further: "*Stickit*—stuck, unsuccessful, having failed, imperfect. *Stickit Minister*—a probationer who is unqualified for, or fails to obtain, a pastoral charge." Crockett had borrowed the expression from his hero, Sir Walter Scott. Poor Dominie Sampson in "Guy Mannering," was "a sort of person who might be the village schoolmaster, or perhaps the minister's assistant"; he had studied for the Church, but upon his first attempt at preaching he "became totally incapable of proceeding in his intended discourse . . . and was ever after designated as a stickit minister."

A stickit doctor, then, is one who relinquishes the calling from want of ability or means to pursue it. There is no synonym for "stickit" in our southern vocabulary. "Botched," though a good English word, hardly meets the case. Have we not all met him in embryo at the hospital, or, later on, in his flounderings after admission to the Register? He is the square peg in the round hole; the "chronic" who may at long last slip through the cordon of examiners only to make a hash of practice; the decent fellow who ought to have tried another job; or even the supposed duffer who discloses afterwards a genuine talent—perhaps real genius—in some quite different walk of life. At his worst the stickit doctor is the predestined failure in any profession.

The Doctor Outside Medicine

Let us first go over the names of a few of those who might be described playfully as "Can't Stick It" doctors—very able men who practised medicine for a time, or taught medical students, and then quitted our ranks for more congenial work in another field. There have been many such defections. In poetry a good example is Robert Bridges, a hospital physician for some years, whose "Testament of Beauty," published on his 85th birthday, Oct. 23rd, 1929, is still fresh in our minds. It has been said of Bridges that he was convinced that "he would be a better poet if he learned and practised some profession which brought him into active contact with human life, and particularly with the investigations and achievements of natural science." And 300 years earlier there was the poet and musician Thomas Campion, writer of charming lyric verse. In philosophy the outstanding English name is that of John Locke. Seventy years after Locke's death a young German named Schiller graduated in medicine on his way to immortality as poet and philosopher. Among lawyers of recent times we recall the first Viscount Finlay, Lord Chancellor of England some 15 or 20 years ago, and note that two practising King's Counsel of to-day, Tom Eastham and Digby Cotes-Preedy, are medical graduates. A small handful of church dignitaries—colonial or missionary bishops and a dean or two—must be reckoned in, and we cannot omit Dr. Livingstone, I presume. There is indeed a long list of medical travellers and explorers, from the time of Mungo Park onwards. Between his explorations in Africa, tracing the course of the Nile, Park practised for some years at Peebles.

Among living painters there are Henry Tonks, Slade professor of fine art in the University of London, 1917–30, Henry Lamb, and Perceval Yetts. Statecraft, politics, and public administration have claimed the redoubtable Georges Clemenceau, Prime Minister of France; Leander Starr Jameson, of South Africa, known in the 'nineties as "Brave Doctor Jim"; Leonard Wood, of the United States of America; Lord Ilkeston, one of Gladstone's lesser henchmen; Christopher Addison, Minister of Munitions, of Health, and of Agriculture; Auckland Geddes, the second of Lloyd George's cabinet anatomists, who held one ministerial post after another and then became British Ambassador at Washington; Walter Elliot, Minister of Agriculture to-day; and many other active members, past or present, of the House of Commons.

The stage took from medicine Charles Wyndham, Stephen Townesend, and Gilbert Hare, though Hare has long since gone back to his first love, bacteriology. Cricket was the chief occupation in life of the greatest of all cricketers, William Gilbert Grace, even if W.G. *did* like to brag in the pavilion at Lords about his "good practice down in Gloucestershire." Fiction and the writing of plays have lured away from us in my time Arthur Conan Doyle, Henry de Vere Stacpoole, William Somerset Maugham, Francis Brett Young, James Bridie (still known in the medical world of Glasgow as Dr. O. H. Mavor), Warwick Deeping, Austin Freeman, and A. J. Cronin, with Arthur Schnitzler in Germany, and Baron Henri de Rothschild in France. In the eighteenth century Tobias Smollett stood out as the one medical novelist when the art of the English novel was in its childhood: his "Roderick Random," "Humphrey Clinker," and "Peregrine Pickle," throw many sidelights on the health resorts, with shrewd comments on contemporary medicine. Without widening my net and narrowing its mesh to catch all the smaller fry of ex-doctors in literary waters, let me name a few medical naturalists whose writings on birds, beasts, and plants have given pleasure and instruction in the present century: Francis Darwin, Arthur Keith, F. Dawtrey Drewitt, A. F. R. Wollaston, Philip Gosse.

As for the members of our profession who have achieved eminence in the realm of pure science their name is legion. Medicine was the mother of the sciences. Where can we begin with them, or where end, even in our own country? William Harvey practised as a physician all the days of his working life; and the same might almost be said of Thomas Young, one of the greatest of English natural philosophers. Albrecht von Haller, physiologist, philosopher, poet, and statesman, graduated M.D. at Leyden. Thomas Henry Huxley took a medical qualification and taught medical students before he became one of the eminent Victorians whom Lytton Strachey forgot to belittle; with Michael Foster, Huxley ranks as physiologist and writer of English and as a fertilising influence upon the science of medicine. Charles Sherrington and Frederick Gowland Hopkins are with us to-day—successors to Lister and to Hans Sloane, the founder of the British Museum, in the presidential chair of the Royal Society. It is within this group, therefore, that we must place those men and women who obtain a medical degree without any intention of ever practising, because they mean to devote themselves to investiga-

* Abstract of paper read to the Listerian Society, King's College Hospital, October, 1935.

tion or teaching in one of the sciences allied to medicine but believe that the full medical course will widen their outlook. The word "stickit" does not apply to them. They have not failed at doctoring: they have taken our curriculum in their stride.

So we come to the practising doctors whose pens, from century to century, have enriched general literature. François Rabelais graduated as bachelor of medicine at Montpellier in 1530, and did well as a physician after—shall we say?—moderate success as a monk. The great name of Sir Thomas Browne, of Norwich, stands out also. "Religio Medici" was written to please himself and his friends in 1635, and he only published the authentic text eight years later because a pirated edition had already got into print. Then in the eighteenth century we find John Arbuthnot, friend of Swift and Pope and inventor of "John Bull," Samuel Garth, Mark Akenside, and Erasmus Darwin (grandfather of Charles). In the first half of the nineteenth century there was Peter Mark Roget, physician and savant, whose "Thesaurus of English Words and Phrases" finds a useful place on many a writer's bookshelf. John Brown, of Edinburgh, and Oliver Wendell Holmes, of Boston, were much-loved writers in the middle of the last century. After them came Silas Weir Mitchell, William Osler, Frederick Treves, and Ronald Ross, of the day before yesterday; and Henry Head, Axel Munthe, and H. H. Bashford of to-day.

Among the medical essayists and biographers Stephen Paget should perhaps be named here, because he had his plate up for years on a door in Harley-street and belonged to the staff of the Middlesex Hospital, though his heart was never really in the practice of medicine. There are also the medical historians and men of letters such as Norman Moore, Clifford Allbutt, and (still with us) D'Arcy Power, Raymond Crawfurd, and Andrew Macphail of Montreal. Nor must we forget the Victorian etcher and writer on art, Seymour Haden, who did his innumerable etchings in the spare time of a surgeon in active practice. To these men the arts, literary, historical, or pictorial, have been in greater or less degree the solace of their *horæ subsecivæ* or by-hours. Few of them could be ranked as failed physicians, medical misfits, stickit surgeons. "Doctors, yet more than doctors" will perhaps serve.

But how difficult to draw a clear line. I hesitated whether to include John Keats with Campion and Bridges, and came to the conclusion that, like Oliver Goldsmith, this divine poet was truly a stickit doctor. Keats obtained the licence of the Apothecaries Society, but poetry was the only thing for which he really cared: "all other pursuits were to his mind mean and tame." High up on Parnassus, does his shade ever recall the drab mornings when he swept out the floor of the surgery of Mr. Hammond, to whom he was bound apprentice? Then we have the case of George Crabbe, physician, parson, poet; his practice at Aldeburgh was but a poor thing, and he gladly turned his back upon medicine. Goldsmith, Keats, and Crabbe, though they obtained medical qualifications, were unfitted to make use of them and soon dropped out. (There is some doubt about Goldsmith's M.B. but let that pass.) Charles Darwin, on the other hand, with ample family means at his back, gave up long before the final examination. The curriculum at Edinburgh failed to attract him; anatomy disgusted him, the operating theatre (in the days before anæsthesia) horrified him, and materia medica left on his mind "nothing but the memory of cold breakfastless hours on the properties of rhubarb." Robert Southey, poet laureate a hundred years ago, tried the study of medicine at Oxford, but found it or himself wanting and abandoned it in disgust. A later poet, Francis Thompson, had the same experience. Alfred Gilbert was a medical student before taking to sculpture, and perhaps gained something from his anatomical studies. Edmund Gosse came to London with the idea of reading for medicine.

Well, there they are: a random sample of stickit doctors who made good outside "the Physic Line." The list could be enlarged. In the time that remains I will leave literary allusions behind and offer a piece of worldly wisdom in the form of a short story. Here follows the fable or parable of a Stickit Doctor of the early twentieth century.

A Cautionary Tale

My contemporary—let us call him Y for short—was the nephew of a doctor, and it seemed right and natural to his widowed mother—and indeed to himself—that he should follow in the uncle's footsteps. Uncle William was a well-meaning but unimaginative man who had done tolerably well in the good old days of Victorian family practice in the "home counties." What way of life could be more appropriate for his young kinsman? So it was all tidily planned over the drawing-room fire by his elders when Y was in the Fifth Form. It never occurred to any of them to wonder whether Y was really cut out to be a doctor. Before leaving school he paid two visits to kind Uncle William, who gave him Gray's Anatomy, an old microscope, a box of bones, and some incomprehensible advice about elegant prescribing. In his first year of medical studies Uncle William died and a stranger bought the practice.

Having made a wrong choice of career Y fell into poor company. His fellow students were of all sorts, but those he chiefly mixed with took the short view. So he made a wrong approach to the science and art of medicine. He crammed for each examination and took many tumbles. No sooner did he jump a hurdle than he put behind him the facts he had got by heart and flung himself at new facts. Some of the facts turned out later to be fancies, but that didn't bother him: the exam. was the thing. He and his friends never perceived that the preliminary and intermediate subjects had a bearing upon the clinical part of the curriculum, to which they all looked forward. From beginning to end, right up to the final ordeal, he read nothing but "Aids" to this or that, and Synopses and short cuts of various kinds, and tried to memorise details in tabular form. His muddled reliance on "tips" was pathetic: they let him down time and again: *memoria technica* may be helpful to some of us, but Y often got the tip wrong at the critical moment in a "viva." When at length he reached the wards he became mildly interested in the patients and in the routine of clinical work. The spirit of the hospital got hold of him. But, as before, he lived from hand to mouth. He didn't read up his cases in Osler or Allbutt, and he let keener students finish off his cases or take his night duty. Need I say that he passed his midwifery examination at the first opportunity and then dismissed the subject from his mind?

In order to sum up Y's approach to the practice of medicine—his way of working for examinations—we may roughly paraphrase a description by Sir Theodore Mayerne of the habits of King James I. in matters of food and drink. He erred in quantity, quality, kind, order, time, and frequency. Poor Y, in short, took every wrong turning. He never even mastered the simple art of making a little knowledge go as far as it can be stretched. Examiners are human, and though it is said that you can't hoodwink them there is (or was) a method of persuading them to take the most charitable view of a candidate. Y didn't know that there was such a technique. He entered the examination room a minute or two after the clock struck nine, dazed and over-filled with undigested facts, after a frantic week of wet-cloth-to-the-brow reading. Five, or even ten, minutes spent in studying the paper and plotting out his three-hour course would have been well repaid. But no: Y started immediately upon the easiest question; then looking up at the clock too late he got flustered, miscalculated his time, left two awkward questions to the last quarter of an hour, and losing his head had to show up a blank sheet for one of them. The

same kind of thing happened during the laboratory tests. In his papers he teased the long-suffering examiners with endless repetition of one verb, "involve," one adjective "marked," and one adverb "markedly." Then in the clinical examinations he went all out for a "spot diagnosis," throwing method to the winds and forgetting that his main purpose should be to prove that he knew how to go over a case and how to bring his observations to a focus. He learnt little from his failures, which he put down to bad luck.

At long last Y scrambled through the Final, only to find that active life as a qualified doctor is full of traps and pitfalls for the unwary. Dr. Douthwaite's little "Guide to General Practice" was not then written, the British Medical Association had not published its "Handbook for the Newly Qualified" nor THE LANCET its "Conduct of Medical Practice." In the first week, before entering his name on the Medical Register or joining a medical defence society, he acted as deputy for a friend who was resident medical officer at one of the smaller hospitals—an institution "not supported wholly by voluntary contributions," to quote the words of the Medical Act of 1858. A child died on its way back from the operating theatre under his care. When it came out at the inquest that he was unregistered the coroner made some very unkind remarks about Y and the hospital. A dozing reporter woke up at this and his flying pencil made good "copy" for the lunch-hour edition of an evening newspaper.

You will not wish me to follow Y through his tribulations as a locum tenens in general practice of various kinds. But I might just recall the bad half-hour in Dr. Z's dispensary in Shoreditch when Dr. Z on his return found the stock mixture bottles nearly full and the expensive tincture bottles nearly empty. There was also the bad half-minute at Surbiton when Dr. A's best patient, Lady B, told Dr. Y what she thought of him for putting a pair of ice-cold hands upon her treasured maid's abdomen. In her ladyship's opinion no examination of that kind was called for—quite unnecessary.

We pass then to the "death vacancy" which Y bought with borrowed money after superficial investigation of the practice and no auditing of the accounts. He omitted to call upon the senior practitioner of the district or to mention his arrival to the local secretary of the B.M.A. But at his first confinement, in a lonely cottage on a winter night, his half-forgotten text-book knowledge failed him, and he sent for the senior colleague, a plain-spoken old man who was unaffectedly rude about "falling into a panic over a delayed first stage."

Y never learnt how to arrange his day's work, so that even in slack times—and they were frequent—he was late for meals and unpunctual in attending at the cottage hospital to give anæsthetics or help at an operation. He had a little stock of ready-made prescriptions more or less by heart, but his attempts to fit one or other of these to the individual patient—or "case"—were not very happy. As for the eloquent commercial travellers from the drug firms and electric-lamp makers and so forth, they found him eager to try every unfledged synthetic remedy and every new piece of apparatus. On the other hand, he was rather careless about keeping up with information from less interested quarters: he often forgot to open and still more often forgot to read his weekly medical newspaper—"What's the good of this prosy high-brow stuff to me?"

It would be wearisome to catalogue all the tactical errors that Y committed in the conduct of his work. There are very good doctors whose hold upon the patient and upon the patient's family is so firm that any shortcoming in the management of the practice does them little harm. Their personality and their professional competence make up for lack of aptitude in business. Not so with Y; he failed all round.

One evening an excessively female young person visited him after surgery hours and he saw her alone. Next day the blackmailing mother dropped in for a word with him. He belonged to neither of the defence societies, and had to employ an expert lawyer out of his own pocket to call the woman's bluff. This was a shattering experience. No wonder that when arranging for a consultation in those dark days he forgot to fix the fee beforehand, and heard with horror from Sir Thomas Guy Bart, on the patient's doorstep, that Sir Thomas's usual charge for coming to Muddleshire was—well, half this patient's income.

And now, to bring the sad story to an end, we reach an afternoon when Y, depressed and preoccupied, and all too conscious of the poor figure he was cutting in the medical profession, received a call from a plain but plausible stranger. This person paid without demur Y's modest fee for prescribing a course of colloidal cadmium (or it may have been vitaminised vanadium). Then he asked Y to sign his application for a passport. It was too late, he said, to hunt up a magistrate or a minister of religion, and the banks were closed: would the doctor oblige? All the particulars written on the form seemed to be in order; the photograph was painfully true to life; and Y fell into the trap. Thereafter meddlesome officials in England and abroad poked their noses into the matter. Police proceedings against the plausible stranger were followed by the appearance of Y before a tribunal, charged with putting his signature to a misleading declaration of "personal knowledge." They let him off with a grave caution, but Y had by now come to the conclusion that medicine was not his real job in life.

He understands dogs very well, and they tell me he has made quite a name in East Wessex as a breeder of Cairn puppies for the market. The explanation may be that a very sensible young woman took him and his affairs in hand just before it was too late, and now manages the household and the kennels with the tact and kindness and firmness which we all look for in a doctor's wife.

If I have over-coloured the case of Dr. Y, the moral is none the less plain. Anyone who seriously feels that he might become a stickit doctor should readjust his ideas, and if need be, rearrange his life—or else quit. But medicine offers many opportunities in diverse fields for different tastes and talents, and before turning his back upon it the man in doubt should take counsel with a wise and experienced elder.

DISTRICT NURSING IN ENGLAND AND WALES

AN interesting survey of district nursing in England and Wales, compiled by the Queen's Institute of District Nursing, provides a record of the district nursing service at present available throughout the country with details of its cost. Of the 62 administrative counties in England and Wales 60 are covered by county nursing associations, of which 10 are working independently and the remainder are affiliated to the Queen's Institute, and it is by the courtesy of the non-affiliated counties that information has been supplied which has rendered this survey complete. As is well known, the nurses giving domiciliary service are of two grades: (1) Queen's nurses, State registered, with an additional six months approved training in district nursing and if employed in midwifery the S.C.M.; (2) village nurse-midwives, i.e., certified midwives with some training in district nursing. The large part played by midwifery in the duties of district nurses is shown by the fact that during 1934, 68,519 midwifery cases were attended in England and Wales by 1019 Queen's nurses and 3068 village and other nurse-midwives. The maternal mortality-rate was 2·74 per thousand cases. During the period 1924–33, 606,545 cases were attended with an average mortality of 1·91 per thousand. Quite apart from midwifery there is increasing demand for trained home nursing care on the part of the medical profession, the local authorities, and the people themselves. A rough estimate made in 1926 suggested that, on a basis

of one nurse for 10,000 of population, nursing was provided for about 75 per cent. of the population, but since that time the experience of the Institute has proved that for a satisfactory nursing service there is more work among a population of 10,000 of an industrial nature than one nurse can undertake. In the present survey, made in 1934, the adequacy of the service is determined not only by the size of the population of the area, but also by the character of the district. The survey is one of the general nursing service and not of midwifery, though where midwifery is undertaken the basis of calculation is adjusted accordingly, pupil midwives being counted as part-time workers.

A number of counties are found to be adequately covered with a complete nursing service. In others the work is extending rapidly. The survey shows that of the 39,864,184 population of England and Wales there is a nursing service available for 38,206,867, or 96 per cent. and 87 per cent. of the whole in England and Wales respectively. This, however, does not mean that the staffs of the nursing associations are in every case adequate to the demand that could and should be made for skilled nursing care. In order to provide for the needs of all, 759 nurses are needed in England in the county boroughs and 739 in the administrative counties, while in Wales 21 are needed in the county boroughs and 106 in the administrative counties. In addition to this more adequate emergency staffs are required by some county nursing associations.

The average cost of a nurse apart from her training has been taken under two headings. A Queen's nurse costs £231 (£207 if working under a superintendent) and a non-Queen's nurse £184, the cost of administration averaging £11 10*s.* per nurse in addition. The total annual expenditure on this service is well over a million pounds, and is provided by endowments, subscriptions, affiliation fees, and such schemes as the opening of gardens to the public for the benefit of the Institute. For the extension of the work more funds are urgently required.

TREES AND THE NATIONAL HEALTH

IN a Chadwick lecture given in London on Oct. 23rd Mr. R. St. Barbe Baker pointed out that vast areas of the world's surface formerly covered by forests have been cleared for agriculture, and that the disappearance of the forests is having an adverse effect upon crops. The remaining virgin forests of the world are no longer adequate to supply human needs, and it is now necessary to plant for the future, and introduce silviculture in the cut-over areas with a view to supplying the right sort of timber for industry while at the same time stopping desiccation and providing catchment areas to allow of adequate water-supply for populated centres. Every town and city should have its own forest rain-catchment area. Surely, he said, part of the solution of the unemployment problem in England would be a progressive forest policy. "What a splendid thing it would be for Great Britain to-day if even 25,000 young men could find fresh work, and with it recreation of body, soul, and spirit in forestry work." It had been rightly said that if a nation saves its trees, the trees will save the nation. Yet there was probably no important industry in which Great Britain is so backward as in forestry. Apart from the employment they give forests were a valuable protection against disease, and those responsible for planning would do well to consider the advantages that might be derived from a forest belt, of at least a mile wide, completely surrounding the site of new towns. Meanwhile we "should all plant trees, in our gardens and parks, in streets and in playgrounds, in cemeteries and on highways, in watersheds and on the headwaters of streams, in nurseries, on farms; and thus re-afforest our country while ways and means of renewing them are being discussed."

The "Men of the Trees" of which Mr. Baker is founder have all been asked to plant at least 25 trees on or about Nov. 11th in commemoration of this year's Jubilee. It has been suggested that Armistice Day should be made a universal day of tree-planting.

EXAMINATION PAPERS

WE have received a collection of examination papers issued by Messrs. E. and S. Livingstone of Edinburgh at 3*s.* 6*d.* Some of the papers were set during the period 1932 to 1935 for the M.B., Ch.B. Edin., and the diplomas in public health, psychiatry, radiology, and tropical medicine and hygiene, of the University of Edinburgh. Other papers are those set by the Scottish Conjoint Board for its qualifying examination and diploma in public health, and by the Royal College of Physicians of Edinburgh for the single qualification, the membership, and a number of special subjects.

MYOCARDIAL DEFICIENCY: CORRIGENDUM.—In last week's report of the discussion on myocardial deficiency at the Royal Society of Medicine Dr. A. G. Gibson is credited with a statement that "in 300 routine post-mortem examinations there had been 116 (38 per cent.) cases of fatty infiltration." The figure 300 should be 3000, which makes the percentage 3·8. We regret the error.

Appointments

BROOKFIELD, R. W., M.D. Liverp., M.R.C.P. Lond., D.P.H., has been appointed Hon. Assistant Physician to the Royal Liverpool Children's Hospital.

GIBSON, C. R., M.B. Glasg., Police Surgeon of Bath.

MCLEAN, D. W., M.B. Edin., D.O.M.S., Assistant Hon. Ophthalmic Surgeon to the Royal Victoria Hospital, Folkestone.

MACMILLAN, W., M.B. Glasg., Hon. Physician to the Royal Infirmary, Worcester.

MCWHIRTER, ROBERT, M.B. Glasg., F.R.C.S. Edin., Radiologist to the Royal Infirmary, Edinburgh.

RAVEN, R. W., F.R.C.S. Eng., Surgical Registrar of the Cancer Hospital (Free), London.

REID, J. B., F.R.C.S. Edin., Hon. Orthopædic Surgeon to the North Ormesby Hospital, Middlesbrough.

ROBINSON, SEYMOUR G., L.D.S. R.C.S. Eng., Hon. Dental Surgeon to the Infants Hospital, London.

THOMAS, A. R., M.R.C.S. Eng., Hon. Radiologist to the Belgrave Hospital for Children, London.

Certifying Surgeon under the Factory and Workshop Acts: Dr. J. SELLAR (Markinch District, Fife).

Births, Marriages, and Deaths

BIRTHS

HOLLINS.—On Oct. 21st, at Sutherland-avenue, W., the wife of Arthur Sturgess Hollins, M.B. Camb., M.R.C.P. Lond., of Thames Ditton, of a son.

LEWSEN.—On Oct. 22nd, at Devonshire-place, W., the wife of Dr. S. Charles Lewsen, of a son.

YOUNG.—On Oct. 17th, at Blackheath, the wife of Dr. W. A. Young, Colonial Medical Service, of a daughter.

MARRIAGES

BELLAMY—GABRIEL.—On Oct. 24th, at Holy Trinity, Paddington, Henry F. Bellamy, M.D., to Violet Mary Theodora Gabriel.

BROWNING—HANCESS.—On Oct. 26th, 1935, at the British Embassy Church, Paris, Dr. S. Barrett Browning, Wellington House, Handsworth Wood, Birmingham, to Mademoiselle Anne Hancess, only daughter of Monsieur and Madame A. Hancess, 7 Rue de Langeac, Paris.

LAMBERT—LINSLEY.—On Oct. 24th, at St. Andrew's Church, Bombay, Donald Page Lambert, M.D., Ch.B., D.T.M. & H. (Edinburgh), Captain, I.M.S., only son of the late Mr. Tom Lambert, Brechin, and Mrs. Lambert, Edinburgh, to Gwendoline Mary Linsley, elder daughter of Mr. and Mrs. Francis Linsley, Morton Banks, Keighley.

DEATHS

CARMICHAEL.—On Oct. 24th, at Elvington, York, William John Carmichael, M.B., C.M. Aberd.

CRANE.—On Oct. 25th, at Kenilworth-road, Ealing, Horace Charles Frederick Crane, L.R.C.P. Lond.,

FROST.—On Oct. 25th, at Lansdowne-crescent, W., William Adams Frost, F.R.C.S. Eng., Consulting Ophthalmic Surgeon to St. George's Hospital and the Royal Westminster Ophthalmic Hospital, aged 82.

PARK.—On Oct. 22nd, at Adel, Leeds, William Norris Park, M.B., C.M. Glasg., late of Carlton, Nottingham.

RUMBOLL.—On Oct. 23rd, at Melksham, Wilts, Charles Frederick Rumboll, M.D. Durh., J.P., D.L., aged 75.

SUTTIE.—On Oct. 23rd, suddenly, in a nursing-home, Ian D. Suttie, M.D. Glasg., of Taviton-street, W.C.

N.B.—A fee of 7s. 6d. is charged for the insertion of Notices of Births, Marriages, and Deaths.